

**ANACHREMPIS**, ἀνάχρεμψις, from ἀνά, for ἄνω, which imports upwards, and χρέπτομαι, to hawk. The bringing up from the Lungs, by hawking, any viscid and tough Matter, which adheres to the Inside of the Bronchia.

**ANACINEMATA**, ἀνακινήματα, from ἀνακινέω, to agitate, or tofs, literally to move upwards. This is a Species of Exercise taken Notice of by *Hippocrates*, in his second Book, πρὸς Διαίτης; but he does not explain what it consists in. *Gorræus* takes no Notice of it; *Foefius* only says, ἀνακινήματα are Com-motions of the Body, which are reckoned amongst Exercises.

*Dacier* however, from a parallel Passage in *Plato*, concludes these Exercises to be those Gesticulations and Motions, which the Combatants used before they entered the Lists. By the Derivation however, ἀνακινήματα, Anacinemata, should signify Leaps.

**ANACLASIS**, ἀνάκλασις, from ἀνακλάω, to bend upwards, or elevate. It is used by *Hippocrates*, πρὸς ὄγκων, Sect. 3. to express the Elevation of the Left Arm altogether, whilst the Joint at the Elbow is not at all bent, but the Humerus, together with the Arm, appear as one strait Bone. This Situation the Left Arm is in, when it supports and elevates a Bow, in order to resist the Right Hand, which draws the String. I know this is not the common Explication of the Word, but it seems to be the Meaning of *Hippocrates*.

**ANACLINTERIUM**, ἀνακλιντήριον, from ἀνακλίνω, to recline. A sort of Chair, made in such a manner, that a Person may recline or lie upon it; a Couch or Settee.

**ANACLSIS**, ἀνάκλισις, from ἀνακλίνω, to recline. *Hippocrates*, in his Treatise πρὸς εὐχρηστών, uses this Word to express the Decubiture of the Sick, which, he says, is to be regarded, both on account of the Season of the Year, and because it makes some Difference, with respect to the Cure, whether the Patient lies upon an elevated Place, (θεῖρες) as a Bed or Couch, or upon the Ground, and in a dark Place.

**ANACLISMOS**, ἀνακλισμός, that Part of a Chair on which the Back of the Person, who sits in it, leans. *Hippocrates* πρὸς ἀρθρων.

**ANACOCK**, the Name of an American Species of *Phaseolus*, in the Opinion of *Ray*. It is called by *J. Baubine*, *Pisum Americanum aliud, magnum, bicolor, coccineum et nigrum simul, five Phaseolus bicolor Anacock dictus*. By *C. Baubine*, *Phaseolus peregrinus ex rubro et nigro distinctus*. By *Gerard*, and *Parkinson*, *Phaseolus Aegyptius*. *Raii Hist. Plant.*

I don't find any medicinal Virtues particularly attributed to it.

**ANACCELASMUS**, a sort of Remedy used by *Dioscles*, according to the Report of *Carlius Aurelianus*, *Chron. Lib. 2. Cap. 14.* for the Cure of a Phthisis. His Words are, *Utitur etiam Anacelasmis, quorum qualitates non memoravit, adjiciens curandum five deducendum a Pulmonibus Humorem, quando fuerat mitigandum potius Ulcus quam repurgandum.*

It does not appear, by this, that the Author knew himself what *Dioscles* meant by Anacelasmus. If, however, we consider the Derivation, which must be from κοιλία, Abus, the Belly; and reflect upon the Effects which the Anacelasmis are expected to produce, *deducendum a Pulmonibus Humorem*, we may perhaps find Reason to believe, that Anacelasmus were frequently repeated gentle Purges, or Medicines which kept the Patient perpetually laxative, especially as these are found of the utmost Importance in the Cure of a Phthisis, or pulmonary Consumption.

**ANACOLLEMA**, ἀνακόλλημα, from ἀνακολλάω, to agglutinate. A Name for certain Topics apply'd to the Forehead to prevent Desfluxions of Humours upon the Eyes. *Galen de Comp. Medic. S. Gen. Lib. 6. Cap. 8.*

It is much the same as **FRONTALE**, (which see) except, that an **ANACOLLEMA** was usually made of astringent Powders, as *Bole*, or *Dragon's-blood*, or *Acacia*, made up with Vinegar, or the White of an Egg, whereas **FRONTALE** signifies any sort of Application to the Forehead.

**ANA-COLUPPA**, the Name of a Plant mentioned in the *Herbarius Malabaricus*, called also *Rammentli Facie INDICA spinata, Corymbifera ciliata, Elyalis tetrapetalis*.

The Juice of this Plant, with a little Pepper bruised in it, is recommended as a sovereign Remedy in an Epilepsy; and is said to be the only Preservative against the Effect of the Bite of the *Cobra Capella*. *Raii Hist. Plant.*

**ANACOMIDE**, ἀνακομιδή, from ἀνακομίζω, to repair or recover the Strength of a Person after Sicknefs. This is a Word which frequently occurs in *Hippocrates*. It imports the Restoration of Strength to a Patient after an Illness, or the Recovering of Health.

**ANACONCHYLISMOS**, ἀνακογχυλισμός, or ἀνακογχυλισμός, a Gargle, from ἀνακογχυλίζω, to gargle. Both these are much used by *Galen*, and the later Greek Writers; but I don't remember to have met with it in *Hippocrates*.

**ANACOS**, ἀνακος, an Adverb used by *Hippocrates*. It imports carefully, prudently, with Circumspection.

**ANACOUPHISMATA**, ἀνακουφίσματα, from ἀνακουφίζω, to lift up, or elevate. This, in *Hippocrates*, (πρὸς διαίτης, L. 2.) joins with **ANACINEMATA** (which see). *Dacier* translates and explains it by *Sauts*, *Leaps*. But some others have thought, that all those Exercises which the Antients called *Gestations*, are included in **ANACOUPHISMATA**.

**ANACTESIS**, ἀνάλησις, from ἀναλίσκομαι, to recover Health. The Restoration of Strength to a Person recovering of a Distemper, which has render'd him weak.

**ANACTORION**, according to *Blancard*, a Name of the *Gladiolus*, Corn-flag.

**ANACYCLEON**, ἀνακυκλῶν, from κυκλῶ, to wander about. It answers to the Word *Circulator*, Mountebank. *Castellus*.

**ANACYRIOSIS**, ἀνακυρώσις, from κύρω, Authority. *Hippocrates*, in his Treatise of *Decency*, giving Advice to Physicians as to their Conduct towards the Sick, advises them, amongst other things, to remember to support their Authority, and the Dignity of their Profession, which he expresses by this Word.

**ANADENDROMALACHE**, ἀναδενδρομαλάχη, a Name for the **ALTHÆA**. *Galen* says it is the vulgar Name for the **ALTHÆA**, Marsh-mallows.

*Blancard* says **ANADENDRON** signifies the same.

**ANADIPLOSIS**, ἀναδιπλωσις, from διπλῶ, to redouble. It is the same as **EPANADIPLOSIS**, which is the Reduplication of the Paroxysm or Fit, in a semi-tertian Fever; that is, a Renewal of the cold Fit, before the preceding Fit is entirely ended. *Galen de Typis, Cap. 4.*

**ANADOSIS**, ἀνάδοσις, from ἀναδίδωμι, to distribute. The Distribution of the Aliment over all the Body.

**ANADROME**, ἀνάδρομη, from δρέμω, an old Greek Verb, which signifies, to run. It imports a Recess, or a Removal of Pains from the inferior to the superior Parts of the Body, in the Sense of *Hippocrates*. This is always esteem'd an unfavourable Circumstance, and of bad Presage, because acrid Humours, or whatever causes Pain, cannot do so much Hurt in the Extremities, as in the vital and more noble Parts.

*Hippocrates* in his first Book of Predictions informs us, that a Distortion of the Eye, consequent upon a Recess of Pain from the Loins or Hip, is bad. And in the *Coacæ Prænotiones*, he says, that a Recess of Pain from the Hips or Loins to the Head, whilst the Hands are affected with a Torpor, and the Patient feels a Cardialgia, (Heart-burn) is a Sign of a copious Hamorrhage from the Nose, and Plenty of Stools; mean time People thus affected, are generally delirious.

**ANÆIDES**, ἀνάιδες, an Adverb used by *Hippocrates*, in a Sense somewhat different from the common Significations; for in this Author it imports *continually, perpetually*, whereas the natural Meaning is, *impudently*.

**ANÆDROMOS**, ἀνάδρεμος, of the same Derivation as the former. It is used as an Epithet for those Fish, which at certain Seasons ascend from the Sea into Rivers.

**ANÆSTHESIA**, ἀναίσθησία, Insensibility. A kind of Resolution of the Nerves, accompany'd with an Abolition of the Sense of Feeling. *Aræteus πρὸς σμη. κ' ἀλ. κεφ. νός. L. 1. C. 7.*

**ANAGALLIS**, the Name of a Plant.

There are two Kinds of Anagallis, which differ in Flower. That with the blue Flower is called the Female, the other with the scarlet Flower the Male Anagallis. They are small Plants, that spread themselves on the Ground, with small, roundish Leaves, like those of Pellitory on the Wall, set on little square Stalks; the Fruit is round.

Both Kinds are lenitive, cure Inflammations, extract sharp-pointed things, which have pierced the Body, and restrain phagedenic Ulcers. The Juice of them, gargarized, purges the Head of Phlegm, and, infilled into the Nostrils, easeth the Tooth-ach, provided it be into the Nostrils opposite to the aking Tooth. Mixed with *Attic Honey*, it deterges an Albugo, and helps Dimness of Sight. Drank in Wine, it relieves those who are bitten with a Viper, or are diseased in the Kidneys or Liver. Some say, that the Anagallis with the blue Flower, apply'd in a Cataplasm, restrains the falling down of the Fundament; but that with the red Flower, thus apply'd, on the contrary, provokes the Disease. *Dioscorides, Lib. 2. Cap. 209.*

Some call the Anagallis *Corchoron*; it is of two Kinds, which grow no higher than a Hand's Breath; they flourish in Gardens and watry Places. What is strange, Cattle avoid the Female Kind; but if, being deceived by the Likeness, for they differ only in Flower, they happen to taste it, they presently seek out an Herb called *Afyla*, as a Remedy, the same which we call *Ferus Oculus*. Some advise those who have a mind to dig it up, to salute it thrice in the Morning, before they have spoken a Word, and then to take it up, and press it; for so it will have the more Virtue. *Pliny, Lib. 25. Cap. 13.*

Both Kinds of Anagallis are very deterfve, and have somewhat of a heating and drawing Quality, whence they extract Splinters out of the Flesh, and upon the Whole have the Virtue of Drying without Mordacity; for which Reason they conglutinate Wounds, and help putrid Ulcers. *Oribas. de Virtut. Simpli. Lib. 2. Cap. 1.*

The



The *Anagallis* of the *Greeks* is the *Macia* of the *Latins*; the Juice of it is recommended to be poured on the Head. *Marcellus Empiric. Cap. 1.*

There are three Sorts of *Anagallis* commonly used in Medicine, the *Mas*, *Fœmina*, and *Aquatica*. The first is the

*ANAGALLIS TERRESTRIS MAS*, Offic. *Anagallis Mas*, Ger. 494. Emac. 617. Raii Hist. 2. 1023. Mer. Pin. 7. *Anagallis flore Phœniceo*, C. B. Pin. 252. Tourn. Inst. 142. Elem. Bot. 119. Boerh. Ind. A. 204. Hist. Oxon. 2. 568. Raii Synop. 3. 282. Dill. Cat. Giff. 126. Rupp. Flor. Jen. 14. Park. Theat. 558. *Anagallis Mas, flore Phœniceo*, Merc. Bot. 1. 19. Phyt. Brit. 7. *Anagallis Phœnicea Mas*, J. B. 3. 369. *Anagallis Phœnicea*, Buxb. 19. *Anagallis*, Chab. 452. MALE PIMPERNEL. Dale.

This is a small low Plant, not above a Span high, having a great many square smooth Stalks, with small Chick-weed-like Leaves, set one opposite to another, without Foot-stalks, full of small, round, blackish, red Spots underneath: The Flowers spring from the setting on of the Leaves, and grow singly on long Foot-stalks, being a Flower of one Leaf, divided into five Partitions, of a beautiful scarlet Colour. The Seed-vessel is round, opening horizontally in the Middle when the Seed is ripe, which is small and round, of a dark-brown Colour. The Root is small and thready, perishing every Year. It flowers in May and June, and grows in Corn Fields. *Miller Bot. Off.*

The second is the

*ANAGALLIS TERRESTRIS FŒMINA*, Offic. *Anagallis Fœmina*, Raii Synop. 3. 282. Ger. 494. Emac. 617. Raii Hist. 2. 1024. Mer. Pin. 7. *Anagallis Fœmina, flore cœruleo*, Merc. Bot. 1. 19. Phyt. Brit. 7. *Anagallis cœrulea*, Buxb. 19. *Anagallis cœrulea flore*, C. B. Pin. 252. Rupp. Flor. Jen. 15. Dill. Cat. Giff. 132. Hist. Oxon. 2. 569. Boerh. Ind. A. 204. Tourn. Inst. 142. Elem. Bot. 119. Park. Theat. 558. *Anagallis cœrulea fœmina*, J. B. 3. 369. Chab. 452. FEMALE PIMPERNEL. Dale.

This differs in nothing from the former, but in the Colour of its Flowers, which in this are blue; and it is more rarely to be met with.

The Virtues of both *Pimpernels* are much the same: It is a Plant moderately warm and dry, with a little Stypticity, and is therefore accounted by some a good Vulnerary. The Juice, being given inwardly by itself, or mixed with Cow's Milk, is useful in Consumptions, and Distempers of the Lungs; it is often put in cordial Waters, as an Alexipharmic; and is good against malignant Distempers: It has been commended by some Writers of Note, as of singular Advantage in maniacal Cases, and in delirious Fevers. The whole Plant is used. *Miller Bot. Off.*

Both these contain a great deal of Salt, and a moderate Quantity of Oil and Phlegm.

They are deterfive, vulnerary, and good against the Bite of a mad Dog, internally and externally applied. *Lemery de Drogues.*

This, however common in foreign Countries, is very rare in England. Dr. Fysher has found it near Peckham.

*John Bauhin* took the Flower of this Plant to be pentapetalous, and its Fruit to be like that of the Chick-weed: But *Cæsalpinus* knew the Structure of its Parts better, for he affirms (not without Reason) that the Flower of the Pimpernel is only divided into five Segments; and that its spherical Fruit loses half its Shell when the Seed is ripe.

The Pimpernel has an herby, styptic, saltish Taste, and gives a deep Tincture of Red to the blue Paper: The Fruit gives it a deeper; so that it is probable, that its Salt may very much resemble the *Terra foliata Tartari Mulleri*. *Tragus* says, a Glass of the Decoction of Pimpernel in Wine, is a potent Sudorific, if the Patient lie still in Bed, so as not to interrupt the Sweat. In pestilential Cases he also advises to wash the Wound with it, upon the being bitten by a Viper or mad Dog, drinking a Glass of it at the same time: Instead of the Decoction of Pimpernel, the Juice may be used, which he commends for the Dropsy, and for Obstructions of the Liver and Kidneys, out of which it expels the Stone, without any ill Consequence. *Hartman, Mynsicht, Rolsincius, Michael, Willis*, and several others, very much commend the Decoction of this Plant, or its Tincture, in Spirit of Wine, for Madness, or the Delirium that attends continued Fevers: The Extract has the same Virtues; it may be mixed with that of St. John's-wort for the Epilepsy. *Simon Paulli* mentions a Cataplasim of Pimpernel, boiled in Urine, and applied to the Feet of those who have the Gout, as a Remedy very much used in his Country. *Martyn's Tournefort.*

The third is the

*ANAGALLIS AQUATICA, BECABUNGA*, Offic. *Anagallis Aquatica vulgaris, sive Becabunga Officinarum*, Merc. Bot. 1. 19. Phyt. Brit. 7. *Anagallis sive Becabunga*, Mer. Pin. 6. Ger. 496. Emac. 620. *Anagallis Aquatica minor, folio subrotundo*, C. B. Pin. 252. *Anagallis Aquatica, flore cœruleo, folio rotundiore, minor*, J. B. 3. 790. *Anagallis Aquatica*, Chab. 568. *Anagallis Aquatica vulgaris sive Becabunga*, Park. Theat. 1236. *Becabunga major & minor Officinarum*, Chomel. 537. *Becabunga*, Rivin. Irr. M. 100. *Becabunga Officinarum*, Rupp. Flor. Jen. Vol. I.

199. Buxb. 332. *Veronica Aquatica rotundifolia Becabunga dicta, minor*, Raii Synop. 3. 280. *Veronica Aquatica major, folio subrotundo*, Hist. Oxon. 2. 323. Boerh. Ind. A. 225. Tourn. Inst. 145. Elem. Bot. 122. Raii Hist. 1. 852. *Becabunga major Officinarum*, Volck. 58. BROOK-LIME. Dale.

The Stalks of Brook-lime are thick, round, and smooth, shooting out fibrous Roots at the lower Joints, by which it easily propagates itself; the Leaves come forth at the Joints, on very short Foot-stalks, one opposite to another, fat, succulent, and round, little or nothing serrated about the Edges, somewhat more than half an Inch broad; the Flowers come forth at the Joints, growing in long Spikes, each Flower being made of a single Leaf, divided into four roundish Segments, and standing on a short Foot-stalk, of a fine blue Colour, and is succeeded by a flattish Seed-vessel, in Shape like a Heart, full of very small Seed. It flowers in June, holding the Leaves all Winter. It grows in Rills and running Ditches. The whole Herb is used.

*Brook-lime* is a good Deobstruent and Antiscorbutic, abounding with volatile Parts, very good for the Scurvy, being an Ingredient in the antiscorbutic Juices, and Diet-drinks, for that Distemper. It is also deterfive and cleansing, and useful in Obstructions of the Kidneys, by Gravel or slimy Humours; as also for the Stone and Dropsy. *Miller Bot. Off.*

Besides these, Ray mentions the following:

*Anagallis omnium minima*, Moris. Prælad.

*Anagallis lutea*, Ger. *Flora lutea*, Park. *Lutea nemorum*, C. B. *Lutea, Nummularie similis*, J. B. YELLOW PIMPERNEL.

*Anagallis cœrulea, foliis binis ternisque ex adverso nascentibus*, C. B. *Tenuifolia*, Ger. Emac. *Tenuifolia flore cœruleo*, Park. *Tenuifolia Monelli*, Clus.

*ANAGARGALICTA*, ἀναργάλις, Gargarisms. Medicines with which the Fauces are washed, from γαργαρίζω, the Throat. *Hippocrates de Affectionibus.*

*ANAGARGARISTON*, ἀναργάριον, of the same Derivation as the preceding. A Gargarism to wash the Fauces with, in a Quinsy. *Hippocrates de Morbis, Lib. 2.*

*ANAGLYPIE*, ἀναγλυφή, from ἀναγλύω, to engrave. A Name given by *Herophilus* to a Part of the fourth Ventricle of the Brain. It is called by Anatomists at this time CALAMUS SCRIPTORIUS, from the Resemblance it bears to a Pen, preserving the Analogy of the Greek. *Galen. de Anatom. Administ. Lib. 9. Cap. 5.*

*ANAGNOSIS*, ἀνάγνωσις, from ἀναγιώσκω, to read or persuade. It signifies, strictly, Reading, or Persuasion, or Conviction. But *Foësius* thinks, that in the Treatise of *Hippocrates*, intituled παρηγγελία, it imports frequent visiting a Patient, and examining the Case.

*ANAGRAPHÉ*, ἀναγραφή, from ἀναγράφω, to prescribe.

*Hippocrates*, in his Treatise of Decency, advises Physicians to have, in Readiness, Portions capable of incising, prepared ἐξ ἀναγραφῆς, according to stated Prescriptions. In this Sense all the Official Medicines may be said to be made ἐξ ἀναγραφῆς.

*ANAGYRIS*, the Name of a Plant.

*Anagyris*, which some call *Anagyros*, others *Acopos*, is a Shrub, in Leaves and Branches like the *Vitex*, of a very strong Smell, bears a Flower like that of Cabbage; and produces a parti-coloured solid Seed, in the Shape of a Kidney, and contained in long Pods; this Seed hardens about the Time that Grapes ripen.

The young and tender Leaves, bruised, and applied as a Cataplasim, repress œdematous Tumours: Taken, to the Quantity of a Dram, in Raisin Wine, it helps the Asthma, promotes the Expulsion of the After-birth, the Menstrues, and the Embryo. For the Head-ach it is taken in Wine. It serves for an Amulet for Women who are subject to hard Labour; but it must be taken off, and thrown away immediately after Delivery. The Juice of the Root is diaphoretic and digestive. The Seed, eaten, is a powerful Emetic. *Dioscorides, Lib. 3. Cap. 167.*

The *Anagyris* is thus distinguished by modern Botanists:

*ANAGYRIS*, Offic. Chab. 78. Mont. Ind. 36. *Anagyris fetida*, C. B. Pin. 391. Ger. 1239. Emac. 1427. Park. Theat. 245. Jons. Dendr. 364. Raii Hist. 2. 1722. Tourn. Inst. 647. Elem. Bot. 507. Boerh. Ind. A. 2. 27. *Anagyris vera fetida*, J. B. 1. 364. STINKING BEAN TREFOIL. Dale.

It is a Shrub, very branchy; the Bark is of a greenish Brown, the Wood yellowish or pale; the Leaves are set in Order, three by three, oblong, pointed, green above, whitish underneath; of so strong and stinking a Smell, especially when they are broken, that they give the Head-ach. The Flowers are yellow, and resemble those of Broom; they are succeeded by Pods as long as one's Finger, like those of Kidney-beans, and cartilaginous; every one of them contains three or four large Seeds, like the Kidney-beans; white at first, afterwards purplish, and at last when perfectly ripe, blue and blackish. This Shrub grows in warm Countries. The Leaves are resolute, and the Seed emetic. *Lemery de Drogues.*

*ANAIDES*. See ANAIDES.



ANAISTHESIA. See ANÆSTHESIA.

ANALCES, ἀναλκεις, from α Negative, and ἀλκῆ, Strength, weak, effeminate. Hippocrates uses this as an Epithet for the Asiatic Nations.

ANALDES, ἀναλδεις, from α Negative, and ἀλδῖω, to increase. It imports Not receiving Nourishment, or Augmentation. It is apply'd by Hippocrates to the Fruits which grow about the River Phasis, de Aere, Locis, Aquis.

ANALENTIA, a Species of Epilepsy mention'd by Paracelsus.

ANALEPSIA. Johannes Anglicus calls by this Name, that Species of Epilepsy which proceeds from Affections of the Stomach.

ANALEPSIS, ἀνάληψις, from ἀναλαμβάνω, to recover, or regain Strength and Vigour, after Sickness. It signifies a Renutrition, or regaining Strength, after having been render'd weak by a Distemper. Hence

ANALEPTICA, Analeptics, Medicines destin'd to promote this Renovation of Strength, Restoratives.

Among all the several Classes of corroborative Medicines, those call'd *Analeptics* justly claim the first and highest Rank. Under this Denomination are included all such Remedies as restore impair'd Strength, raise depress'd Spirits, and possess what we commonly call a comforting Quality. Such Medicines are likewise known by the Names of *Cordials* and *Cardiacs*. The Parts of the vegetable Kingdom, which best answer this Intention, are the Flowers of Roses, of the Lemon-tree, of the Orange-tree, of Jessamine, and of Lillies of the Valley; the Herbs Baum, Origanum, Marum, Lemons, China Oranges; and of Spices, Cinamon; of resinous Substances, Amber; of Animals, Musk: And also the Preparations of all these, the Oil of Cedar, of Turkish Baum, the true Oil of Roses, the OLEUM CANANGE, Oil of Bergamotte, Essence of Ambergrise rightly prepar'd, Oil of Cinamon made into an *Elæosaccharum*, Baum-water prepar'd with Lemons, Water of Lillies of the Valley, of Cinamon prepar'd with Quinces. Under this Class may likewise be reckon'd Strawberries, Currans, Raspberries, Cherries, and their Stones, Waters prepar'd of fresh Cherries, Lemon-juice, and Syrup of Lemons.

These Cordials act by their fragrant, sweet, subtile, and oily Principle, and very soon enter the Nerves, and communicate a mild and gentle Motion to the Fluid they contain; for such is the Nature of all sulphureous, subtile, and strong-scented Medicines, that they soon pervade the inmost recesses of the nervous Parts, and quickly produce their Effects, which is evident from fetid Medicines; and even such as are of an agreeable Smell, especially in Constitutions, that thro' an Idiosyncrasy cannot bear them. Hence by their Smell alone, as in faintings and swoonings, they speedily exert their corroborative Virtues, and raise the drooping, languid Spirits of the Patient; and this because the Extremities of the Nerves, and small Blood-vessels, are in no Part of the Body less cover'd, or more immediately expos'd and naked, than in those large and capacious Ducts which we call the Nostrils, to which when fragrant Medicines are apply'd, they very quickly affect the Nerves and Spirits.

### I.

Though we are not to deny the above-mentioned Analeptics their proper Share of Efficacy in cherishing Nature, and recruiting impair'd Vigour, yet it must be confess'd their Power that way is pretty much limited and restrain'd. It were indeed to be wish'd, that there were in Nature Medicines of this Kind, of a certain and infallible Virtue, which the Vulgar foolishly enough imagine, and as foolishly require at the Hands of the Physician, such as could effectually exert their restorative Powers, and recruit languishing Vigour in all Distempers, but especially those of the acute and malignant Kind. But as in all Diseases there is not a more rational, or a more certain way of restoring Strength, than by carrying off the morbid Causes, and banishing the noxious Principles of the Disorder from the Body; so unless the Physician effect this, the Use of ANALEPTICS is to no manner of Purpose.

### II.

Not is it to be thought, that a genuine, lasting, and uniform Restoration of Strength is to be procured only by Medicines which excite a Motion in the Spirits and solid Parts; for in many Diseases, especially in Fevers and Convulsions, there is a great moving Force and Power in the Heart, the Arteries, and nervous Membranes, and yet the natural Strength is weak and languid; so that a true and genuine Restoration of the natural Strength principally depends upon proper Aliments, both of the eatable and drinkable Kind, being converted into good Blood, and laudable Juices, which afterwards generate that subtile Fluid which is secreted in the Brain; and being carried thro' the Nerves to the Muscles, and muscular Coats, principally supplies the Body, and its several Parts, with Strength and Vigour.

### III.

Those Nutritives therefore which afford a Matter most proper for this Purpose, are the best Analeptics, of which Kind are

gelatinous Broths of Flesh, Capons, and Bones with their Marrow, boiled in a close Vessel with Water, a little Wine, some Slices of Lemon, a little Salt, Powder of Mace, and Cloves. Broths also made of coarse Westphalian Bread, Water, Wine, and Eggs.

Chocolate, with or without Milk, Ass's Milk, Water distill'd from coarse Bread, and Lemon-peel, and Wine, especially rich old Rhenish Wine, and unadulterated Hungarian Wine; but these nutritive and strengthening Aliments are not to be used in the very Time of the Disease, nor when the whole Mass of Blood and Humours is very impure; but when the Distemper is over, and where, by a preceding Disease, or by Excess of Passion, long Watching, Fatigue and Labour of Body or Mind, or large Hæmorrhages, the Strength is wasted and impair'd, in these Cases such Medicines are very proper; but even then Caution is to be used, and a proper Moderation to be observ'd, and kept up to, because they pass very speedily into the Blood, and augment its Quantity. Hoffman, *Medicina Rational. Systemat.*

ANALGESIA, ἀναλγεία, from α Negative, and ἄλγος, Pain, or Grief. It signifies a State of Ease, without Pain, whether in a natural State of Health, or from some morbid Affection depriving any Part of Sensation.

ANALLIS, ἀναλλις. Erotian says this is the Name of a Plant; but neither he, nor any other Author I have met with, say what Plant it is.

ANALMYROS, ἀνάλμυρος, from α Negative, and ἄλμυρος, Salt, unsalted.

ANALOGISMOS, ἀναλογισμός, from ἀναλογίζω. Analogy. It signifies Ratiocination, or the Investigation of things not evident from the Analogy they bear, or are supposed to bear, to things well known.

ANALOSIS, ἀνάλωσις, from ἀναλίσκω, to consume, a consuming, or wasting.

ANALTHES, ἀναλθης, from α Negative, and ἀλγῖω, to cure. Incurable.

ANALTOS, ἀναλτος, from α Negative, and ἄλς, Salt, unsalted, insipid, not salt to the Taste.

ANALYSIS, ἀνάλυσις, from ἀναλύω, to resolve. The Resolution of any Substance into its first Principles, with a View of discovering its component Parts.

The Method of analysing mineral Waters has been delivered under the Article ACIDULÆ, which I would advise the Reader to peruse, because I have there specify'd the Nature of many Substances, some or more of which are found to exist in most compound Bodies; and in the same Place I have specify'd the general Methods of discovering them.

There is something very trifling in the common Analysis of Plants and Animals; the way is to distil them in proper Vessels, and examine what rises into the Receiver, and the Caput Mortuum, or what remains in the Vessel, and is too heavy to be rais'd by the Fire. But by this Method very little or nothing can be discovered, insomuch that it is not possible from the common Analysis to discover even what the analys'd Plant or Animal was.

In the Analysis of Plants a large Quantity of Phlegm generally comes over first, then an acid Spirit, an alkaline or urinous Salt; and lastly, a black fetid Oil. From the Ashes of what remains, is obtain'd a lixivial Salt, such as Salt of Tartar, which runs *per deliquium* in the open moist Air; or a Kind of *Sal Salsus*, such as that of the common Wall-flower. Besides these Substances, which are got by Distillation from almost all Plants, there are others obtainable only from some of them. Thus from aromatic Plants, such as Lavender, Thyme, Sage, &c. a subtile, fragrant, essential Oil, generally rises first. From a few Plants, such as Hellebore, Helleborastrum, Speedwell, Cresses, and others, a very sharp, penetrating Spirit or Oil comes over with the first Degree of Fire, which is likewise obtain'd after the Plants have been fermented, but in a different Order. Sometimes the first Degree of Fire brings over an acid or urinous Spirit, sometimes an inflammable and very volatile Spirit.

These are the few Elements, or Principles, obtainable from Plants. We are not, however, to imagine, that those which go by the same Name are exactly alike in all Plants. The fix'd Salts, for Instance, got from their Ashes, being originally derived from some Acid, must differ from one another in various Plants, as much as Acids themselves do. For the same Reason the acid Spirits, volatile urinous Salts, and even essential Oil, must be different; and accordingly we observe, that the essential Oil of Thyme, digested with Spirit of Sal Ammoniac, gives a violet or purple Tincture, which many other essential Oils will not do. Wherein all these Differences precisely consist, has not hitherto been sufficiently clear'd up.

From animal Substances we obtain a large Quantity of volatile urinous Salt, a thick Oil, very little fix'd Salt, and still less acid Salt. The same Substances, being boiled in Water, yield a Mucilage, or Jelly, from which, by Distillation, the Principles already mentioned may easily be got. But as most animal Substances yield these in much the same manner, and as they appear very little, if at all different, in different Animals, nothing



nothing can be determined *a priori* concerning the medicinal Virtues of particular Animals from their Analysis.

The following Observation of *Homburg*, and *Lemery*, deserve Notice, as there is something extremely curious in them upon this Subject.

*Observation on the ANALYSIS of Vegetables, by M. Homburg.*

All the Chymical Analyses of Plants which have hitherto been made with a View to discover their Natures more perfectly, have been conducted and managed almost in the same manner; that is, by separating, by means of Fire, their constituent and component Parts. The principal Difference which has been observ'd in Separations of this Nature, is, that some have fermented the mix'd Body, before it is subjected to the Powers of the Fire; whereas others have began the Analysis without any previous Fermentation. The Principles produced or furnished by both these Manners of Separation, universally consist of certain Quantities of *Salts, Oils, Water, and Earth*.

It has, for very good Reasons, been doubted, whether what we here call *Principles*, are the true and real *Principles*, which constitute and make up the mixt Body, before it was subjected to the Analysis; or, in other Words, it has been doubted, whether these four Substances, into which the compound Body is resolv'd by the Force of Fire, were really to be found in that Body, when it was in its natural State.

The first Reason for our doubting of this, is, that two Plants perfectly differing in Taste, in Smell, in Figure, and in Virtues, *Cabbage*, for Instance, and *deadly Night-shade*, are, when subjected to an Analysis, reduced into Principles so similar, both with respect to Number and Quality, that a Person would take them for one and the same Plant analysed at different times; and nothing is more certain, than that the one is a Pot-herb, and the other a Poison.

The second Reason for our doubting of this, is, that one cannot make up the same compound Substance, by rejoining the Principles into which it has been resolv'd by the Analysis, whatever Fermentation they should undergo, or whatever Degrees of Fire should be employed for that Purpose.

I pass over other Difficulties, since they seem to be of less Consequence; but these I have now mentioned, certainly challenge some Attention. As for what regards the first Reason of Doubt, I shall only say, that we cannot absolutely deny, that these four Substances, Salt, Water, Oil, and Earth, enter the Composition of all Vegetables, since they are universally found in them, after whatever manner the Analysis is conducted or carried on; but the Difficulty only is, to know whether they exist after the same manner in the Plants, as they do when we have procured their Separation by Analysis; or whether the Powers of the Fire have not alter'd these Principles, and given them a quite different Appearance, from what they had in the compound Body.

I have made several Experiments, in order to satisfy myself with regard to this Point; but I shall only here give an Account of the Manner in which I performed one of them, since I intend to draw some Consequences from it.

The Juice of ripe Grapes, newly express'd, put into a Vessel, and distill'd, will first yield a large Quantity of an aqueous Liquor, of which, the Part that first comes over, is tasteless and insipid; and that which come last, acid, with some Marks of a volatile urinous Salt; then by augmenting the Fire, it will yield a small Quantity of a very foetid Oil; and that which remains in the Vessel, being incinerated and lixiviated, yields a lixivial Salt, and leaves a small Quantity of insipid Earth.

This same newly express'd Juice of Grapes being evaporated to about a third on a very slow Fire, and put into a cool Place, an essential Salt, somewhat acid, crystallized itself in it; and an oily Substance, very sweet and agreeable to the Taste, floated on its Surface; and the Liquor that remained was a little tartish, on account of some essential Salt, which still remained in it.

This same Juice of Grapes, having fermented, and become Wine, yielded in Distillation a pretty large Quantity of inflammable Spirit, afterwards a great deal of a purely aqueous Liquor; then the Matter, which remained in the Alembic, being evaporated to the Consistence of thick Honey, I took it off the Fire, and poured upon it the strongest Spirit of Wine well dephlegmated, which became charged with a reddish Oil, of an aromatic Smell; a little earthy Matter was precipitated, and an acid Salt, resembling Tartar, crystallized at the Bottom.

These three different Analyses, of one and the same mixt Body, yield us the same Principles, but very much alter'd by the great Fire in the first, and by the Fermentation in the third Analyses; so that the Principles yielded by the second Analysis, having neither suffered the Torture of a strong Fire, nor undergone a Fermentation, must least of all recede from the natural State which they retained in the Plant. We find the Sweetness of the Grape in the oily Matter which floats above the Crystallization, its poignant Taste in the tartish Salt which was crystallized, and its Fluidity in the aqueous Phlegm which was evaporated from it. The earthy Matter remain'd mixt with the Oil and Salt, and could not be separated but by a great Fire,

as happened in the first Analysis, in which we observe the same things with regard to the Salt of this Plant, as in strong Distillations we observe of fossile Salts, such as Saltpetre, and Vitriol, which we very well know to be acid volatile Salts, mixed with a proportionable Quantity of fixed Salt, and insipid Earth, which serve as a Kind of Matrix to them. But as the Salts of Plants are more compounded than fossile Salts, we accordingly find the Salt of our Plant divided into three different Parts; the first is that acid Salt which pass'd thro' the Neck of the Retort along with the last Parts of the Phlegm; the second is that volatile urinous Salt which passed partly with the last Drops of the Acid, partly alone, and partly with the foetid Oils; the third is the fixed Salt, which is separated from the earthy Parts by Lixiviation; and these three Salts being naturally joined together in the Plant, compose its essential Salt, which, as we have seen, crystallized in the second and third Analyses.

The Oil of this Fruit, which in the second and third Analyses is sweet, and of an aromatic Smell, is in the first Analysis considerably changed into a very acrid and stinking Oil, probably on account of a Quantity of urinous and acid Salts contained in the Plant, which the Violence of the Fire has carried off at the same time; and mixed with the said Oil, which Salts, after passing thro' the Neck of the Retort, became volatile, whereas the Salts yielded by the other two Analyses were not so; and as Fermentation naturally disengages volatile from fixed Substances, we find in the third Analysis a great deal of a burning Spirit, which is the most volatile Part of the Oil of our Fruit, and which was separated from it by the least Heat.

We see by the Comparison we have made of the Principles yielded by one and the same mixt Body, in three different Analyses, that these Principles are always found in the same Number, but different only in Degrees of Volatility and Fixation, according to the Fermentation and Degrees of Fire these compound Bodies have undergone, during their respective Analyses. Besides, if to this we add the infinite Combinations of *more or less* of these Principles, the Differences of which may be imperceptible by us in the Analysis, we shall not be surpris'd to find two Plants so different in Taste, in Smell, and in Virtues, as the *Cabbage* and *deadly Night-shade* are, so much alike and similar in their Principles.

For these very Reasons we may likewise easily comprehend, why one cannot, if I may use the Word, *recompase* a mixt or compound Body, by rejoining the Principles into which it has been resolv'd by Analysis; because the Fire having changed their natural Arrangement, and respective Degrees of Volatility and Fixation, and having, even unavoidably, dissipated some Part of them, these Principles, being again join'd together, are neither found in the same Quantity, possessed of the same Quality, nor arrang'd in the same manner they were in the compound Body before it was subjected to the Analysis.

To convince myself still further of this Truth, I have mixt very simple Principles, in order to compose certain Bodies, which I afterwards subjected to Analysis, and which yielded the several Principles quite chang'd from what they were; for Instance, the fixed lixivial Salt, and the express'd Oil of Plants, mixed together on a Fire, compose a Soap, which, among other Principles, yields in its Analysis, an acid Liquor, an insipid Earth, and an urinous Salt, which do not at all appear in the Ingredients of which it is composed.

The Mixture of an acid Mineral, with the essential Oil of any aromatic Plant, composes a Resin perfectly resembling that which flows from certain Trees. This Composition is only made up of two very volatile Ingredients; and yet, upon an Analysis, it yields all the four Principles. It must indeed be own'd, that upon the Mixture of these two Substances, so sudden and violent a Fermentation arises, that a Flame is often thence produced; and as we know, that in all Fermentations a Separation is naturally made of the volatile from the fix'd Parts, there was no great Difficulty in separating the one from the other in the Analysis, tho' they did not appear such before the Fermentation.

All these Considerations and Remarks shew us, that those Analyses in which only a great Fire is employ'd, are not so proper to discover the Principles and Virtues of Plants, as when by a moderate Heat, and Fermentation, we promote the Separation of their component Principles. *Homburg, Mem. de l'Acad. Roy. A. 1701.*

*Remarks upon the Usefulness and Deficiencies of the common Methods of analysing Vegetable and Mineral Substances, by Mr. Lemery.*

That I may throw a greater Light around what I intend to say upon this Subject, I shall make use of a Comparison, which, to me, seems very well calculated for the Illustration of the Subject.

Suppose then two Edifices, almost of the same external Form, but built of Materials different in themselves, and differently arranged and disposed with regard to each other. If, in order to discover this Difference of Materials, and their different Arrangements in each Edifice, one should destroy both, and

make,



make, if I may be allow'd the Expression, a sort of Decomposition or Analysis, by means of an active and violent Agent, which, instead of sparing the Materials on which it was to act, and only separating them from one another, and leaving them entire after their Separation, should by the natural Force and Quickness of its Motion, in a short time, reduce them to a Dust; in such a Chaos, where every thing would not only be confounded, but even considerably altered and changed, would it be possible to know and distinguish the Difference of the several Materials, which had enter'd the Composition of each Edifice? Or might it not possibly happen, that the Dust, produced by the Demolition of the one, might resemble that afforded by the other? If this should happen to be the Case, People would not fail to conclude, that both Edifices were built of the same Materials, tho' in Reality it was otherwise.

This is a full Image and Representation of what happens in the ordinary Analysis of Plants and Animals: The Fire employ'd in Operations of this Nature is the quick and active Agent above-mention'd; for it spares none of the Substances submitted to its Action; it soon confounds and attenuates them; and, if I may so speak, reduces them to a kind of Dust. But, whether by the Confusion and Derangement of the Parts, or by the foreign and adventitious Parts conveyed to the different Substances of the compound Body, it lays a Foundation for the Production of new Compositions, which are often widely different from those which were naturally inherent in the Body itself. 'Tis probably for these Reasons, and on account of a certain Change induced by the Fire on the different Parts of Plants and Animals, that it often happens, that two Plants, one of which has very salutary, and the other poisonous Qualities, and whose natural Composition must be consequently very different, resemble each other so much both in the Substances they yield, and the Quantities of these Substances, that if their Qualities were not known before, we should be induced, in Consequence of the Analysis, to believe them one and the same Plant.

When I say, that the Fire produces such a remarkable Change and Alteration upon the Substances yielded by compound Bodies, I do not intend to represent these Substances as real Principles, nor to intimate, that the Principles of compound Bodies are alterable by the Action of the Fire. What has laid a Foundation for this Opinion is, that some Substances, which commonly, but unjustly, receive the Name of Principles, actually undergo such a Change by the Fire; but I shall afterwards prove, when I come to examine what Bodies, in a truly Chymical Sense, deserve the Name of Principles, that we have all the Reason in the world to be assured, that these Bodies do not change their Forms by the Action of the Fire, or rather, that if they are susceptible of any Change by means of that Agent, the Alteration does not fall upon any of the Principles in particular, but only upon their Union, or the Manner in which they are united with one another; so that the Fire may well change the Form of the compound Body, by dissolving its Parts, and arranging them in a different Manner from what they were, but can produce no Change with regard to the Principle, the Solidity of which renders its Parts inseparable, and consequently its Form unalterable.

It may perhaps be said, that if People would make a just Estimate of the Advantages arising from Chymical Analysis, in acquiring the Knowledge of compound Bodies, before they engaged in them, the Fruitfulness of the Labour would make them drop the Project; by which means they should save a great deal of Labour, Expences, and Time, which might be more advantageously employ'd.

I answer, that we are not able to form a just Judgment of Chymical Analysis, till such time as they are made, and we ourselves put into a Condition of examining all their Circumstances carefully, and comparing them with one another. Since then a Knowledge of the small Advantage that attends them, must be the Result of a Trial made; it is requisite for Conviction in this Point, and to put us in a Condition to discover wherein their Defect lies, that such Trials and Experiments be first made; and even tho' one should foresee before the Experiment, all that is observed to happen after it is made, yet the Reasons alledged against the Attempt, amount only, at best, to bare Conjectures, incapable of procuring Assent, and unworthy to be laid in the Balance against the Advantages, which, 'tis pretended, the Public receives from Labours of that Nature. Besides, as these Conjectures could not have been confirmed, but by going thro' the Analysis themselves, there would have still been a Necessity for making them, but with this Difference, that in the one Case, the Analysis should have succeeded the Conjectures, and been a kind of Confirmation of them, whereas in the present Case, the Analysis are first made, and lay a Foundation for our future Reflections.

Besides, tho' all the Analysis which should have been made, should answer no other End, but to undeceive us with regard to themselves, and point out what we ought to think of them, this would still be an Advantage sufficient to balance the Time and Pains we have laid out in that way: But what still more

contributes to justify Labours of this Kind is, that in examining a long Train of Accidents that happen in analysing a great Number of compound Bodies, one discovers a great many curious Facts, which without Trial and Experiment had never been known, and which may, perhaps, prove of singular Use to Mankind.

The Execution of the Project having then sufficiently shewn the little Advantage to be reap'd from ordinary Analysis, that Point, as it is now no longer controverted, is not what I here propose to discuss and prove. I take the Fact for granted, and look upon it as certain and incontestable; but I search for the Reason or physical Cause of it, in the ordinary manner of carrying on Analysis, that is, in the Violence and Activity of the Fire, which is the Agent employ'd, and in the Disorder, Derangement, and Confusion, which it brings to all the Parts of the compound Body.

I have already given an Idea of this Disorder and Derangement, in the Beginning of this Memoir; but as this Idea is too general, and requires to be proved and illustrated by a more minute Examination of the particular Change which each Substance in the compound Body undergoes, I shall set about it so much the more willingly, since by narrowly considering wherein the Defect of the ordinary Analysis consists, we shall acquire more correct Ideas of the Matter, and, perhaps, be enabled by that means to contrive and carry on other Kinds of Analysis, longer indeed than these, but at the same time more exact, exempt from their Inconveniencies, and much better calculated for discovering the Principles of compound Bodies. In order to form a sound Judgment of the Change produced by the Fire, on the different Parts of a compound Body, analysed in the ordinary manner, we have only to consider each of its Parts in their natural State, and compare this State with that which succeeds it, after they have undergone the Action of the Fire: Two Kinds of Substances, in Plants and Animals, deserve our particular Attention; one is their saline, and the other their pinguious Parts.

I have already said, that I did not pretend to represent these Substances as Principles; and indeed to declare my real Sentiments with regard to Chymical Principles, I shall shew, that each of these Substances is capable of being resolved into different Parts, none of which are themselves Principles; but, compound as they are, 'tis of Importance for the Knowledge of the Nature of compound Bodies, to extract them, and to know them to be such as they are in these compound Bodies, that is, when they are entire, and no ways disfigured or changed; for it is in this Shape, that they act immediately upon our Fluids; and this Action does not depend upon any particular Part of which they are composed, but upon the general Union of all these Parts, whence certain Masses are produced, the Effects of which are often very different from those of each of the Parts, whether considered separately, and acting in this manner, or supposed simply mixed and blended, but not closely and intimately united, as they are in the compound Body. It is then plain, that one cannot be at too much Pains to know these Masses in their natural State, and to extract them as entire as the Nature of the thing will admit of: And if we incline afterwards to discover more perfectly the hidden Contents of these Masses, 'tis only then we can analyse them with Advantage, as I shall clearly prove, when I come to treat of Analysis of that Nature.

I compare these Masses to the very Materials of the two Edifices I have already proposed as an Example; for in order to know the interior Composition of these Edifices, 'tis not enough to destroy them by breaking the Union of their Materials; but these Materials must be separated in their entire State, at least they must not be unlike that which they were in the Edifice itself, or before the building of the Edifice; otherwise they will give us but a faint and obscure Idea of the interior Composition of the Building. This is what also happens in the different Substances extracted from Plants and Animals, in the ordinary Method of carrying on Analysis; for I shall shew by an Examination of each of these Substances, that after the Analysis, and their Separation from the compound Body, they are so far from resembling the exterior Form which they bore in it, that they become often so different from what they were, and acquire Virtues so opposite to those they had, that we should scarcely believe the Difference, if Experience did not in a manner force us to it.

The saline Parts of Plants and Animals are commonly lodged in them under the Form of a concrete Salt, of which they contain several Kinds.

I have observed, in examining a great Number of Animal Substances, on account of my Disquisitions into the Nature of Saltpetre, that these Substances contained a great Quantity of Sal Ammoniac, that is to say, a Salt of the same Nature with that which may be made by the Conjunction of an acid and a volatile Salt; Spirit of Salt for Instance, and volatile Salt of Hartshorn, or of Vipers. Besides, I have observ'd, that the Acid of the natural Sal Ammoniac, contained in these animal Substances, was nitrous, or like to that which is yielded by



by Saltpetre; so that one might, by a Train of Operations, so well purge this Acid of the pinguious Substances, which are naturally complicated with it in the Animal, that it should become a Spirit of Nitre, differing in nothing from the common Spirit of Nitre. Besides, the animal Substances, on which I made my Observations, left me no Reason to doubt of their containing a small Quantity of true Saltpetre, that is, of a Salt like to that which is produced by an Union of the Acid of Spirit of Nitre, and a fixed alkaline Salt. In a word, in these Substances, where the nitrous Acid is found in a large Quantity, tho' so much envelop'd, that one cannot discover it without a great deal of Pains and Industry, the greatest Part of this Acid is join'd with a volatile Matter, and forms a Sal Ammoniac; and a small Portion of this Acid is stopp'd by a fix'd Matter, and forms Saltpetre.

Besides the nitrous Sal Ammoniac, and the Saltpetre contain'd in all the animal Substances I have examin'd, I have also extracted from some of them, and that with a great deal of Ease, a considerable Quantity of true common Salt, entirely like the ordinary Sort; but I could never observe, that any of these Substances contained a Sal Ammoniac, produced by the Acid of that Salt. I do not, however, deny the Fact. I only think I have a Right, in Consequence of the many Experiments I have made upon animal Substances, to advance, that the greatest Part of the Sal Ammoniac contained in them, is nitrous; and that if any Part of it is produced by another Acid, that Acid is to be found in a much smaller Quantity than that of the Nitre. But whatever the Nature of the Acid contained in Animals be, it has been already observed, that the Difficulty of discovering it sufficiently proves it to be strongly envelop'd; and as the nitrous Acid there naturally forms a Sal Ammoniac, or a Saltpetre, according to the Nature of the Substances in which it is engag'd, we have Reason to believe, that all other Acids are conceal'd, at least the greatest Part of them, under the same Substances. This is sufficient for understanding what I am to say hereafter.

Sal Ammoniac is not so common in vegetable, as in animal Substances. They nevertheless contain some of it, but abound much more in a concreted Salt, the Matrix or Basis of which is a fixed Substance; and as there are in Reality many more fixed and earthy Parts in Plants than in Animals, and more volatile Parts in Animals than in Plants, that Acid which in Plants ordinarily produces a Salt of the same Nature with that which would be produced by the artificial Mixture of the said Acid with a fixed Salt, produces, on the contrary, in Animals, as I have already observed, a Salt like that, which would be produced by the Mixture of an Acid and a volatile Salt. As this is the Case, we need not be surpris'd, that some Plants should contain a great deal more of Saltpetre than is to be found in any animal Substance, and that there should be more nitrous Sal Ammoniac in animal Substances, than can possibly be found in any Plant.

It shall be shewn under the Article Nitre, how the Saltpetre of Plants becomes the nitrous Sal Ammoniac in Animals, and how the nitrous Sal Ammoniac may again become Saltpetre in Plants.

But the Saltpetre, and the nitrous Sal Ammoniac, are not the only Species of concreted Salts contained in Plants. There are other Sorts formed indeed by a like Matrix, that is either fixed or volatile, but by an Acid of another Nature, such, for Instance, as that which is yielded either by Vitriol, or common Salt; and all these Salts contained in different Plants, form different Classes of essential Salts, which have different Properties and Effects, according to the Species of that Acid which gives each of them its respective Form. I shall not at present enter deeper into this Subject, but only observe, that in some of these Salts, the Acid is so well envelop'd in its Matrix, that when the Salts themselves are apply'd to the Tongue, they only excite a Sensation of Saltiness, but not at all of any Acidity. I must also observe, that upon mixing some of them with an alkaline Salt, neither a Fermentation; nor a Coalescence of the two Salts ensue; such is the essential Salt of Borrage, and that of Purslane, which, to speak properly, are a true Saltpetre. But there are other essential Salts, the Acids of which, being less closely envelop'd in their Matrices, appear, as it were, on the Surfaces, and present the Extremities of their Points, which being free and disengaged at that particular Part, excite, by that means, the Sensation occasioned by an Acid, upon their being applied to the Tongue. By the same Principles of Mechanism these Salts ferment, and unite with alkaline Salts; an Instance of this Species of Salt, we find in the Crystals of Tartar.

Having examined the Character, the State, and the natural Composition of those Salts, which are ordinarily found in vegetable Substances, let us now inquire what becomes of them when they have been subjected to the Fire, commonly employed in the ordinary Analyses; and let us begin with the Sal Ammoniac contained in Plants and Animals.

As the two Parts of which this Salt is composed, are both of such a Nature, as that whether separately, or in Con-

junction, they may be elevated by the Fire in such a manner, as that after their Elevation they preserve the Union they had before the Operation; I say, as this is the Case, it should seem probable, that the Sal Ammoniac contained in Plants and Animals, should be raised in the same manner by the Action of the Fire, that is, entire. But yet it is not raised so; it first suffers a Disunion of the Parts which compose it, and each of these Parts rise separately by Distillation. We even observe in the ordinary Analyses of Animals, that all which rises in this manner is not, or, at least, does not appear to be any more than a volatile alkaline Salt, that is, the most volatile Portion of the Sal Ammoniac separated from the Acid, which is so little discoverable in the Substances raised by the Fire, that it has for a long time been thought, that animal Substances contained no Acid; and it is but lately, that the contrary has been found true, which is look'd upon as a Discovery so much the more curious, because it destroys a Prejudice founded upon the Analyses of a great Number of animal Substances. It is true, that by only considering these Analyses, one falls into two very palpable Errors; the one is, that there is no Acid in Animals, though there is in Reality a great deal; the other is, that their Salts are lodged in them under the Form of a volatile alkaline Salt, though from other Circumstances, we know very certainly, that these Sorts of Salts, like fixed alkaline Salts, have not been rendered alkaline, but by the Fire, which has in a manner half uncompound'd them, by depriving them of a Part of their Acids; so that by restoring these very Acids to them, they are perfectly restored to the State and Condition in which they were in the compound Body, before it was subjected to the Action of the Fire.

I proceed to explain why an Analysis only discovers a Part of the Sal Ammoniac contained in Animals, what becomes of the acrid Part of that Salt, how the one is separated from the other, and why they do not rise with each other, as it usually happens in the ordinary Sublimation of Sal Ammoniac.

In order to solve all these seemingly perplexing Phenomena, I lay it down as a Maxim, that *When Circumstances vary, then, and in that Case, Effects must also be different*: For Instance, Experience teaches us, that volatile alkaline Salts are more volatile than the Particles of Water, that is, they are more easily raised by the Fire; and yet in the Distillation of the Viper, and a great many other animal Substances, the Phlegm, which is less adherent to the other Parts, mounts first, and before the volatile Salt; but when this same volatile Salt is once unsettle'd, and set at Liberty from the Bonds which, as it were, held it in the compound Body, and when the Business is to separate it from the Phlegm, with which it has mixed and blended itself in the Recipient, it is not the Phlegm; but the volatile Salt, which the Fire raises and sublimates first.

Something similar to this happens in Sal Ammoniac, when it is alone, adherent to nothing, and quite disentangled; for then the Fire surrounds it, and raises it entire, without any Difficulty; and without the Trouble of two Attempts. But when that Salt is in a compound Body, it is then intimately united with its earthy Parts, which fix it, render it heavy, and hinder it from yielding to the Action of the Fire so easily as in other Circumstances it would have done; so that the Fire not being able at that time to raise all the Salt, disengages and raises the most volatile Parts of it; which lays a Foundation for the acid Part to blend itself more and more with the earthy Part of the compound Body, in proportion as the volatile Salt quits and forsakes it. This Reasoning is sufficiently justified by Experience, since by mixing a sufficient Quantity of an alkaline Substance with common Sal Ammoniac, and subjecting the Whole to the Fire, that Salt does not in that Case rise entire, as it does when alone, and only its volatile and alkaline Parts yield first to the Fire, and fly off, whilst the Acid of the Salt deeply insinuates itself into the Pores of the alkaline Matter, from which it does not afterwards disentangle itself, but by an Effort of the Fire more considerable than that of which we now speak. This is precisely what happens in the ordinary Distillation or Analysis of an animal Substance; for the Fire used in that Operation is sufficient to disengage the volatile Salt, the Phlegm, and a considerable Part of the Oil; but 'tis not sufficient to produce such an Effect upon the Acid, especially since it is more deeply entangled in the earthy Part of the compound Body; and it is for this Reason, that one perceives none of it in the different Portions which are raised during the Analysis; or if these Portions contain any of it, it is in so small a Quantity, and so strongly envelop'd in oily Matrices, that it cannot be discovered; and what proves the Truth of this Reasoning is, that if the Matter is subjected to a more violent Fire than usual, there rises a Liquor which has manifest Marks of Acidity; and one may observe upon this Occasion a curious Phenomenon, which has already been taken Notice of by the late Mr. Homberg, which is, that the Acids we are now speaking of, after being obliged to yield to the Force of the Fire, return, and are again found in the same Liquor with the alkaline Salts, which were before united with them; and notwithstanding the



the new Mixture of these Acids with their alkaline Salts in the same Place, there is neither a sensible Fermentation raised, nor does there happen a Reunion of the two Bodies, which, on this Occasion, preserve their respective Properties, the one of an acid, and the other of an alkaline Salt.

Mr. *Homborg* is of Opinion, that we ought to ascribe the Peculiarity of this Circumstance, to the small Quantity of Phlegm contained in the Mixture; since in Cases of a like Nature, we often see Acids and Alcalies remain together in a State of Inaction; but I likewise think, that the oily Parts, which are scattered up and down in the Liquor, and which may have contracted a particular Union with the Acids during the Operation, which perhaps hinders us from distinguishing the true Character of them in the manner hereafter to be explained, I say, that these oily Parts, by enveloping the Acids, contribute very much to hinder their Action upon the volatile alkaline Salt. And indeed, if we were only to be sway'd by the Reason which Mr. *Homborg* advances, we should be at a Loss to get over one Difficulty, which is, that there is often a Quantity of aqueous Parts in the Liquor, sufficient at least for a small Effervescence, which would very soon be succeeded by a sensible Reunion of the Acids and Alcalies.

As we have good Reason to believe, that in the Analysis of compound Bodies charg'd with Sal Ammoniac, the Decomposition of that Salt is not made, but in Proportion to the fixed and earthy Parts contained naturally in these Bodies, I cannot help imagining, that those animal Substances, which particularly abound in volatile Parts, may well be supposed not to contain a sufficient Quantity of earthy Parts for all the Sal Ammoniac contained in these Substances; and consequently, that all that Sal Ammoniac was not decomposed in the Analysis; but that Part of it either remained with the Caput Mortuum of the Substance, or lost only a moderate Quantity of its Acids; and becoming, by that means, less volatile than those volatile Salts which are better separated from their Acids, but at the same time more volatile than the Sal Ammoniac which has lost none of them, it was in a middle State betwixt the two, and might be said to be on the same Level of Volatility with the aqueous Parts in which it had sheltered itself during the Operation, and from which we cannot afterwards separate it by Distillation, because being neither heavier, nor lighter than the Water, it neither rises before it, as the ordinary volatile alkaline Salts do, nor after it, as the Sal Ammoniac, which is entire, does. And as that Liquor, which constitutes what we commonly call a Spirit, ferments with Acids, whether by means of some volatile Salts it has retain'd, or on account of the Acids, which the Sal Ammoniac of the Liquor has lost, in whose Place new Acids are lodged; I say, upon some of these Accounts, some have thought they had a Right to conclude from this Fermentation, that the Spirit was only a Phlegm impregnated with the same volatile Salts, which are drawn from the Substance under a concrete Form: But if this is the Case, why cannot we totally, or at least in a certain Degree, deprive this Spirit of its volatile Salts, by putting it into a Matras with a long Neck, with a Head and a Recipient; and paying the way by a gentle Heat for these Salts, which should happen to be lighter than the Water, to separate themselves from that Liquid, and rise to the Top, as a volatile concreted Salt, dissolved in Water, or even in a Spirit, uses to do under such Circumstances? We may therefore believe, upon very probable Grounds, that in the ordinary Analyses of animal Substances, all the Quantity of their Sal Ammoniac is not equally decomposed; that is, in the different Portions of that Salt, an equal Separation is not made of the Acid from its alkaline Part or Matrix, which is what is commonly called the *Volatile Salt of Animals*; so that certain Portions of that Salt free themselves to a certain Degree from the Acids, which they contained in the compound Body; other Portions retain more of their Acids, and others perhaps lose still less; and, notwithstanding the Operation, remain almost under the same natural Form they had in the compound Body, as happens in certain Distillations of the volatile Spirit of Sal Ammoniac, where for want of a sufficient Quantity of an absorbent Medium, there is only a Part of that Salt from which the volatile alkaline Salts are detached, and rise at first, whilst the other Portion of the Sal Ammoniac remains entire at the Bottom of the Vessel; and being afterwards subjected to a greater Fire, it rises in the Form of Flowers, which are nothing but an entire Sal Ammoniac, or at least a Sal Ammoniac with the greatest Part of its Acids.

What seems to confirm this Opinion, that all the Sal Ammoniac of animal Substances is not equally decomposed during their Analysis, and that, because they do not naturally contain a sufficient Quantity of earthy Parts; what, I say, seems to confirm this Opinion is, that by supplying that Defect, that is, by mixing with these Substances a sufficient Quantity of fresh earthy Parts, to produce the Decomposition of a greater Quantity of Sal Ammoniac, we at last disunite, and set at Liberty, a great Number of Acids, and volatile Salts, the Union of which would have still subsisted, without such an

Addition; and by this new way of Proceeding, we not only obtain more volatile alkaline Salts, but also the Liquor, which towards the End of the Distillation, is carried up by a proper Degree of Fire, is much more sour, and more impregnated with Acids, than when we do not mix an earthy Medium with the animal Substances before Distillation.

'Tis then certain, that animal Substances contain a great deal of Acids, of which the ordinary Analyses do not discover the least Marks; and this Circumstance shews us how little Confidence is to be reposed in them: But we must also own, that the new Method of discovering the Acids of Animals, is not without its Defects, even with respect to the Acid discovered; for if, by disentangling this Acid, it discovers one where none was before perceived, then as the Disengagement of this Acid is carried on in the very Bosom of the compound Body, and in the very middle of the Parts of which it is composed, the Acid, after its Separation from the volatile alkaline Salt, which envelop'd it, is ever after confounded, and mixed with Parts of a different Nature, in the same Fluid, which indeed may permit it to be discovered an Acid in general, but, by their Mixture, prevent our knowing the specific and distinguishing Character of the Acid; so that we cannot ascertain the particular Class of Acids to which it belongs; a Circumstance, which is nevertheless of great Importance, when we want to know the genuine Nature of the saline Part of any compound Body.

I shall endeavour to remedy this Inconvenience, when I come to propose Processes for the Analysis of compound Bodies. *Memoires de l'Academie Royale des Sciences*, 1719.

Having now considered the Action of the Fire upon that Species of Salt, with which animal Substances are principally impregnated, I mean Sal Ammoniac;

We are now to examine the Alteration produced by Analyses in another kind of Salt, found particularly in Vegetables, and differing from *Sal Ammoniac* only as to its Matrix, which is fix'd. This Difference, with respect to the Matrix, does not hinder the Fire from producing, upon the greatest Part of the Salts of this kind, the same Effects which it usually does upon *Sal Ammoniac*; that is, it disengages a great Quantity of the Acids of those Salts from the Matrix in which they were lodged, and for the same Reason that *Sal Ammoniac* is reduced by Analysis to an acid, and an alkaline volatile Salt. That kind of Salt, of which we now treat, must be reduced, and in effect is reduced, the same way, to an acid, and to an alkaline fixed Salt: But as the fixed Salt, for that very Reason because it is fixed, makes infinitely more Resistance to the Action of the Fire than the volatile Salt, there occur two different Things in the Dislodgment of the Acids of each of these Salts from their particular Matrix; which are, first, that in the *Sal Ammoniac*, the Matrix being much more volatile than the Acid, it rises first, and leaves Part of the Acid disengaged from it at the bottom of the Vessel; whereas, on the contrary, in the other Species of Salt, the Matrix being very fixed, and making much more Resistance to the Efforts of the Fire than the Acid, it of consequence remains at the Bottom of the Vessel, and the Acid quits it, and flies up, tho' not indeed so readily, and with such a Degree of Volatility, as the Matrix of the *Sal Ammoniac* leaves its Acid, and evaporates into the Air.

The other Difference, which merits a particular Attention in this Place, is, that the volatile Matrix rises pretty quick, and by no considerable Fire, and consequently is not much exposed to the Force of that Agent; but the fixed Matrix, on the contrary, remains always exposed thereto, because it is not elevated, and besides has need of a pretty considerable Fire, which must continue a good while, in order to separate from it a great Quantity of Acids, that it might become an alkaline Salt: These Things consider'd, the Fire has all the Time and Convenience of working a very considerable Alteration in the fixed Salt, while it cannot, and in fact does not, communicate the same to the volatile Salts. We shall in the Sequel explain wherein that Alteration consists, and what is the immediate Cause of it, in discoursing more particularly of alkaline fixed Salts.

Tho' the Salts which have a fixed Matrix for their Base, do all resemble one another in one Point, that is, in powerfully resisting, at least by their Matrix, the violent Efforts of the Fire, we ought not, however, to believe they are alike in all Things, and that the Fire produces the same Effect in every one of them; for tho' they agree in the common Circumstance of the Fixedness of their Matrix, they may yet greatly differ from one another, not only by the particular Character of their Acids, but even by the very Nature of their Matrices, which, tho' fixed, and consequently like one another in that respect, yet differ very considerably on other accounts, which is the Reason, that tho' the Action of the Fire, with respect to the different Salts we are speaking of, be always the same, yet as the different Particles, of which these Salts are composed, do not give way to that Action in an equal Manner, and are more or less susceptible of certain Modifications, there must result from thence as different Effects.

We



We know, for Instance, that different Acids, independent of any solid Matrix capable of detaining them, and swimming in an aqueous Liquid, have not all the same Degree of Volatility; that there are even some of them, such as those in Oil of Vitriol, and Spirit of Alum, which rise but very slowly, and with great Difficulty, by the Violence of a very strong Fire; whence we may judge, that if these Acids should take up their Residence in a fixed Matrix, and in Conjunction with it form a concrete Salt, they would in such a State make a yet greater Resistance to the Efforts of the Fire.

We are assured, on the other hand, that the Fire elevates with much greater Ease, and in a much shorter Time, the Acids contained in Spirit of Nitre and common Salt, and that it would also find a less Resistance from the Acids contained in the volatile Spirits of Vitriol, and those of common Sulphur, extracted by the Process described by *Stahl*; inasmuch that when, for Example, the Acids of the Spirit of Nitre, or those of Oil of Vitriol are united in the same Matrix, in Conjunction with which they form a concrete Salt, the Fire will with much more Ease dispossess the nitrous Acids than those of the Oil of Vitriol, provided that the Circumstances are all equal, and a due Medium is employ'd when necessary; for without that there are Instances, where the Fire would have no more Power to separate the nitrous Acid from its Matrix, than to separate the Acid of the Oil of Vitriol, as we shall see hereafter.

So much as to what regards the different Resistance of the concrete Salts to the Action of the Fire, with respect to the Acids of which they are composed: But what contributes infinitely more to diversify the Effect of this Agent upon each of these Salts is, the particular Nature of the Matrix with which these different Acids are united and combined, for the Formation of such or such a Species of concrete Salt; and we are convinced, that there are a very great Number of fixed Bodies capable of absorbing Acids, and forming with them a concrete neutral Salt, or *Sal Saljum*: Of this Kind are not only all the fixed alkaline Salts, but many of the different Kinds of Earth, as well as metalline Substances, and Metals.

Hence it appears, that Acids do not enter with the same Facility into the Pores of every one of those Substances; that they penetrate farther into some than into others; that the Pores of those different Substances embrace and retain them with more or less Streightness, according to their natural Capacities, and perhaps also according to the stronger or weaker Spring or Elasticity of their Strata; for I have observed, that when foreign Bodies enter with Violence and Difficulty the Pores of some Substances, there necessarily follows a Dilatation of these Pores produced by the heaving up of their Sides or Strata, which afterwards sink down again of themselves, by their proper Spring, as soon as the Body which kept them in that elevated State quitted its Place: Consequently, when the Acids, introduced into the Pores of different Alkalies, have dilated those Pores by elevating their Sides to a certain Point, as these Sides, by virtue of their Spring, make continual Efforts to lower themselves, and resume their former Situation, the greater the Spring, the greater is the Effort, and the more are the Acids contained in the Pores compressed and streighten'd by the Sides of these Pores, and the more Obstacles has the Fire, which afterwards acts upon the Composition of Acids and Alkalies, to surmount, in dislodging the Acids. Hence it follows, that the same Acid residing in different Matrices, be they purely terrene, metalline, or of other Kinds, will make a greater or less Resistance to the Action of the Fire, according to the particular Nature of each of those Matrices. It is also observed, that the same Acid which may, with more or less Facility, be dislodg'd from several Sorts of Matrices, will not be made to quit some certain Kinds, whatever Violence of Fire be used for that Purpose, at least, without having recourse to some proper Medium. We have a sensible Proof of this Truth in several natural and artificial neutral Salts, and, among others, in common Saltpetre, and in that Sort which we can make at Pleasure in an Instant, by the Mixture of a nitrous Acid with an alkaline fixed Salt; for it is certain, and I have several times had Experience of it, that how violent soever the Fire be which you use about each of these Salts, they will sooner be dissipated whole and entire, either into the Air, or through the Pores of the Vessel, than admit of Decomposition, or the Separation of their Matrix from their Acids, that is, a parting with their Acids, and remaining behind at the Bottom of the Vessel, in the Form of an alkaline fixed Salt, such, for Example, as that used in making the artificial Saltpetre. But when to the Action of the Fire we join the Assistance of a convenient Medium, the Separation of the Acid from the Alkali soon commences; and in this Operation there happen two different Effects according to the particular Nature of the Medium. If the Medium be purely sulphureous, and nothing is to be done but to assist the Exaltation of the nitrous Acid, without communicating any thing new to the Matrix of the Saltpetre, this Matrix, after the Operation, appears under the Form of an alkaline fixed Salt, such as that used in making artificial Saltpetre. We have an Example of this Truth in a very common Operation, which is the

Fixation of Saltpetre by Charcoal. But if the Medium itself contains a good Quantity of Acids more fixed than those of Saltpetre; and of a vitriolic Nature, it much contributes to the Separation and Exaltation of the nitrous Acid, but it substitutes other Acids in the room of the nitrous ones; in which Case, the Matrix of the Saltpetre, which after the Loss of its Acids ought to have appeared under the Form of an alkaline fixed Salt, always shews itself under that of a neutral Salt, which is no longer true Saltpetre, but is become a real vitriolic Tartar, wholly resembling that which may be made with an alkaline fixed Salt, and a vitriolic Acid.

In short, as the vitriolic Acid, such, for Instance, as that contained in Oil of Vitriol, in Spirits of Sulphur, or Alum, &c. consider'd independently of any Matrix, is the most fixed of all Acids, when it becomes united to one of these fixed and saline Matrices, which never let go a nitrous Acid, unless forced to it by an Intermedium, it must make a much greater Resistance to the common Efforts of the Fire and the Medium, than the nitrous Acid would do in the like Case. And this is no more than what really happens; for if you mix Tartar vitriolated and Powder of Charcoal in a red-hot Crucible, the vitriolic Acid will by no means fly off, as the nitrous Acid, join'd to the same Matrix, would not fail to do by a like Procedure. One might even totally consume all the oily Part of the Charcoal, mixed with the Salt, over the Fire, without separating the vitriolic Acid from its Matrix; in short, after the Operation, and the total Deflagration of the Oil of the Charcoal, we shall always find the vitriolated Tartar in the same State as it was before, and without any sensible Loss of its Acids: And, in fact, if we are resolved it shall lose them, we must, besides the Fire and sulphureous Medium, which are sufficient for the Acid of Saltpetre, make use of other Assistances both in proper Time and Place, and of another Method of Process; that is, when the oily Body has been mixed with the vitriolated Tartar in the red-hot Crucible, and, having closed with the vitriolic Acids, has not indeed been able to hurry them into the Air, but has always had Strength sufficient to disengage them in some Degree from the Pores of the alkaline Salt, (which produces a new Compound of a yellow or red Colour, and of the Smell of common Sulphur, that dissolves in Water, and in which the Acid lays hold, at the same time, of the fixed Salt of the vitriolated Tartar, and of the Oil of the Charcoal) we must then lay hold of the Opportunity, when these vitriolic Acids begin to be disengaged, to put a Stop to the Action of the Fire, without which Precaution the oily Part would be dissipated, and the Acid, being left to itself, would reunite, as before, by Help even of the Action of the Fire, to the interior Parts of the Alkali, whence the oily Body had begun to dislodge it: We must then dissolve the new Compound in Water; and since the vitriolic Acid, being united to an oily Substance, has not in that State so fast a Hold of its Matrix as before, because it has been half-disengaged by that Substance which absorbs it, and which envelops it, at least in Part, we have no more to do but to pour upon that Dissolution a free Acid, which, in proportion as it insinuates into the fixed Salt, easily drives out and dislodges the vitriolic Acid, which being separated from its saline Matrix, and only attach'd at that Time to the oily Substance, forms a true common Sulphur, which is precipitated to the Bottom of the Vessel.

Thus much then we know in general, concerning the different Alterations which Fire produces in several Kinds of concrete Salts, which have for their Basis a fixed Matrix; at least it is what we have been able to learn of them from Experiments and Operations made upon a good Number of Salts of that Kind, as well natural, and extracted from several Earths, Stones, Marchasites, &c. as artificial, and form'd by the Union of different Acids with a very great Number of fixed Alkalies. But in order to be perfectly instructed, and to have an exact and complete Idea of the Confusion produced by Analyses in the different Parts of all these Salts, which have for their Base a fixed Matrix, and are contained in Animals and Vegetables, but especially the last, it is necessary to extract from every one of these Compounds the Salts which they contain, and to extract them entire, that is, such as they were in the very Compound; and after that to separate the Acid from the Matrix of these Salts, and upon every one of these Parts to make the necessary Experiments for knowing the particular Character both of the Acid and the Matrix; and, lastly, after we are come to understand the Nature of these Kinds of essential Salts, and the Form under which they reside in the Compound, we must compare them with what they are in the State to which they are brought, after they have passed through the ordinary Analyses.

This Undertaking, which is of a vast Extent, and requires a very particular Detail of the Experiments, is exactly what we have already spoken of in the preceding Memoir. Mean time, the great Number of Analyses which have been made, and the Reflections which naturally result from hence, the Discoveries that have been made, and the Knowledge we already have of several essential Salts of Plants, and the Comparison of those



Salts with such as are extracted from the Plants by the ordinary Analyses ; and, lastly, the Experiments which have already been related upon several other Salts, which never lodg'd in the Plants, but which we certainly know are, several of them, analogous to those Salts which reside there, and susceptible of the same Alterations ; all these Matters of Fact, of which we shall make a proper Use hereafter, will be more than sufficient to assure us not only that the Fire disguises and considerably alters the Salts we are speaking of, but also to instruct us in the Nature and Manner of this Disguisement and Alteration.

As the Salts we speak of reside principally in vegetable Substances, we shall mostly enlarge on the Analysis of these Substances, and the rather, because there are usually but small Quantities of these Salts in Animals, and the Alteration which they there receive by means of the Fire, is the same as they receive in Vegetables by the same Agent. Wherefore, what shall be said of this Kind of Salts which are contained in vegetable Substances, may be apply'd to the same Salts, consider'd as residing in Animals. But as the great Number of Observations I have made upon the Analyses of Plants afford too much Matter to be contained in this Memoir, I shall refer myself to these which follow. *Memoires de l'Acad. Roy. des Scienc. 1720.*

When we consider the Analyses of a great Number of Plants, and the different Particles which the *gradually increas'd* Fire in a Distillation raises from them, we observe that there are some Plants, which, besides their aqueous and oily Parts, afford sensible Proofs of a good Quantity of Acids, others promise less, some very little, and, in short, some there are, whose Number indeed is very small, which yield no more than an animal Substance, analysed according to the ordinary Method of proceeding, might be supposed to do. These Differences arise from several Circumstances ; as, from the greater or less Quantity of Salt naturally contained in each Plant ; for as this Salt is formed of Acids lodged in a fixed or volatile Alkali, the more a Plant contains of that Salt, the more Acids it contains, and consequently the more it can send off and elevate in Distillation, all due Allowances being made. Besides, these Acids are raised more or less easily and copiously in Distillation, according to their different Degree of Volatility, and the particular Character of the Matrix which contains and envelopes them, as has been shewn in the preceding Memoir ; and, in short, these Acids render themselves more or less perceptible by known Characters, as they are more or less cover'd and concealed by other Corruptibles which rise with them, and which are found with them in the Receiver. Having already spoken of the alkaline volatile Salts which rise in the Analysis of Vegetables and Animals, we shall only make this farther Reflection on them with respect to the Acids we just now spoke of, which is, that as they rise with these Acids, they more or less prevent them from appearing, or making themselves taken Notice of by their proper Characters, according as they are more or less strictly united with them ; and as the Quantity of volatile Salts, with regard to that of the Acids, is more or less considerable in every Portion of the distilled Liquor : For tho' we, as well as others, have observ'd in the first Memoir, that it sometimes happen'd in the Analysis of several Substances, that Acids and volatile Salts, when driven by the Fire, were collected together in the same Portion of Liquor, without reuniting one with another, but there preserving each of them their particular Properties, one of an Acid, the other of an Alkali, of which they gave distinct and evident Marks ; we did not, however, pretend to conclude from that Observation, that all the Acids and volatile Salts which rose together, or which were found again in the same Portion of Liquor, were or remained in the same Estate of Union. And, indeed, we made it appear, in speaking of the *Sal Ammoniac* contained in Animals, that the volatile Salt, which is separated from it by the Analysis, and is found in what they commonly call Spirit of Animals, had retained and carry'd up with itself a good Part of the Acid of the *Sal Ammoniac* ; that this Acid did not render itself perceptible in that State, because it was surrounded on all Sides with a very great Quantity of volatile Salts ; that, on the contrary, these volatile Salts, in spite of the Acids which they had retained, being by no means entirely saturated, were still proper for Fermentation with new Acids, and consequently made themselves known by that Character ; and that, in short, if the Acid we speak of did not manifest itself by the ordinary Proofs, it might always be clearly perceived by means of an Analysis made with an earthy Medium ; and that in another respect we were obliged to this Acid for the Degree of Volatility in the volatile Salt contained in the Spirit of Animals ; for this Salt has one thing in particular, which is, that in point of Volatility it is perfectly on a Level with those Parts of Water from which it cannot be separated by way of Evaporation, and from which it is easy to separate the common *Sal Ammoniac* and volatile Salts ; the former, laden with Acids, being less volatile than Phlegm, and always rising after it ; the others, on the contrary, which are depriv'd of their Acids as much as is possible, being by that means more volatile than Phlegm, rise, and are sublim'd before it, as it appears in the common Operation of the Rectification of volatile

Salts ; or when, after dissolving volatile Salts in a certain Quantity of Water, we urge the Liquor with a proper Heat. Another thing which proves, that the volatile Salt contained in the Spirit of Animals is a Mean betwixt a complete *Sal Ammoniac* and the common volatile Salts, on account of the particular Quantity of Acids it retains, which renders it incapable of being separated by way of Evaporation, is, that if you add to this Salt a sufficient Quantity of new Acids to render it less volatile than Phlegm ; you by that means revive it into what it was before, that is, into a kind of *Sal Ammoniac*, which, being urged by a gentle and convenient Heat, does no longer accompany the aqueous Particles as before, but lets them fly off, remaining itself at the Bottom of the Vessel under a dry Form ; which it would not do, were it less charged with Acids.

In short, if we use the ordinary Methods of exactly depriving this new *Sal Ammoniac* both of the new Acids which it had received, and of those which it had retained in too great a Quantity before, there will result from that Operation a volatile Salt, whose Volatility will no longer be on a Level with the aqueous Particles as before, but will be sublim'd before them, and with a less Heat.

You see by this Example, and it will appear more clearly by what follows, that a Quantity of distill'd Liquor, which shews Marks only of an alkaline volatile Salt, may yet contain also a considerable Quantity of Acids. But it will be said, that the Acids in the Example proposed are not intimately united with the volatile Salts, during or since the Operation of the Analysis ; that they were combin'd in the Compound itself, where they made Part of its *Sal Ammoniac* ; and that it is not at all surprising, that this Union, which always subsisted since the Operation, should be capable of keeping them under Covert, and in a manner remov'd not only from our Taste, but also from the Influence of some Chymical Essays ; but this Difficulty, will it be added, does not concern these Acids, which never forsook their volatile Matrix, but the Acids that belong to the concrete Salts, which have a fixed Matrix : For when once the Acids of those Salts have been loosed from their Matrix, and carry'd off by the Fire, as they are then free, and without Covert, they may be easily known by different Proofs ; and if they find any alkaline volatile Salts, either in their Way, or in that Part of the Liquor which is transmitted to the Receiver, there is Reason to think, that they will avoid being envelop'd by them ; first, because we are assured, from the Analyses of a very great Number of Plants, that one and the same Part of these Analyses very frequently afforded sure Proofs of Acids and alkaline volatile Salts at the same time ; which could never happen, if from any Circumstance, or the favourable Opportunity of being in the same Place, these Bodies had contracted some Union. Secondly, because in analysing some animal Substances with more than common Exactness, it is observ'd, that Acids, which were united in the Compound with volatile Salts, and being separated from them in the Analysis, were afterwards again found with them in the same Part of the Liquor, did not, however, reunite, tho' they were at least as fit to lodge themselves in their volatile Matrix, and to resume the Place which they possessed there before, as other Acids, which at first belong'd to a fixed Matrix, and were separated from it by the Fire.

In Answer to this Objection, which appears founded on an incontestable Observation, I shall give an Account of some other Observations, which will perfectly clear up the Difficulty propounded. Soon after the Academy had done me the Honour to receive me as a Member, I set myself to analyse a good Number of Plants, and made some of my Analyses in the Assemblies at that Time ; but reflecting afterwards on the little Fruit I reap'd of my Labour, which besides had been undertaken before my Time in the same Place, I left it off, and did not then imagine, that some Remarks, which the Analyses had occasioned, would have been of Service in this Case. These Remarks regard the Alteration which happens to several Parts of analysed Plants, when these Parts have been kept a certain Time ; for the ordinary Chymical Essays do then often work Effects in them quite different from such as they produce immediately after the Analysis has been made ; and this Difference made me believe, at first, that I had been mistaken, and that I had been careless in examining for the first time the Part where I found nothing afterwards like what I had seen in the Beginning. But I was convinced of the contrary by several times repeating the same Observations upon different Plants ; and besides, I found, a little while since, in some Manuscript Analyses of the late Mr. *Bourdelin*, that this worthy Member was well apprised, that some Sorts of analysed Plants did not always act after the same Manner, at different Times, under the same Chymical Essays.

I observed then, that in the Number of Plants which I analysed, there were many of them which in Distillation yielded some Quantities of Liquors, which shew'd, at one time, sensible and distinct Marks both of Acids, and of alkaline volatile Salts, but still more of Acids than Alkali ; and that when these Liquors had been kept a certain Time, which was necessary for their volatile Salts, in some measure, to saturate themselves with the Acids,



Acids, they shew'd no more Signs of volatile Salts, but still gave manifest Tokens of Acids, on account of the Redundancy of those which remained in the Liquor, or, if you will, on account of the Overplus of Acids, which had not been able to find out a *Sal Alkali* in which they might take up their Quarters, and so, remaining free and uncover'd, might easily make themselves perceptible.

In the second Place I observed, that there is requir'd more or less Time for the total disappearing of the Signs of the volatile Salts, of which we have been speaking, according to the greater or less Quantity of those Salts, and in proportion as the Acids of the Liquor have more or less Disposition to lodge themselves in those Salts.

Thirdly, This Disappearing proceeds by little and little, and by Degrees, and you may observe every Day the successive Diminution of the Signs of the volatile Salt, which disappear sooner or later, in proportion as they are more or less strong and vigorous in the Beginning. This may often be observ'd in the Analysis of a single Plant, which sometimes afforded two or three Parcels, which were of the Nature of those we have been speaking of, but had not the Signs of the volatile Salt equally strong and lively in all of them immediately after the Analysis. Whence these Signs often became annihilated in one Parcel, and still subsisted in the other, where, tho' diminished, they were still perceptible, either by an Ebullition caused in the Liquor by the Mixture of an acid Spirit, or by a white Precipitation resulting from the Mixture of that Liquor with a Solution of corrosive Sublimate.

Fourthly, When the same Parcel of distill'd Liquor, which afforded sensible and distinct Marks both of Acids and volatile Salts at the same time, contained a greater Proportion of volatile Salts than Acids, it often happen'd, that after a certain Time, that is, when all the Acid of the Liquor had been absorb'd by a sufficient Quantity of volatile Salts, the Liquor shew'd no more Signs of an Acid as before, but still gave Tokens of volatile Salts, in proportion to the Excess of these Salts, which remained free, and uncover'd, for want of finding a sufficient Quantity of Acids in the Liquor, with which it might unite; and it appeared to me, that in this Case the Signs of the Acids disappear'd after the same Manner, and with the same Circumstances, as did those of the volatile Salts in the preceding Observations.

Fifthly, In all the Portions of distill'd Plants which I have observed, and in which there becomes, in Process of Time, an Union of Acids and volatile Salts, which at first were lodg'd separately, I found none, which, after a Junction of the Acids and volatile Alkali, ceas'd to afford Marks both of the one, and the other; which is no more than what might seem necessary to happen on some Occasions, that is, when we find in the Liquor no greater Quantity of Acids than is requisite to saturate the volatile Salts therein contained. But as it is not impossible but such a just Proportion of Acids and Alkalies might meet together, I will not deny the Matter of Fact, which may possibly be observed hereafter by some others: I only made on this Occasion the following Experiment. In the Analysis of several Plants it is observed, that some Portions of the distill'd Liquor, and oftentimes all of them, except the last, or two last, of the Distillation, shew no Signs but of Acids, and those in Plenty; and that the last Portions, on the contrary, afford no Marks but of volatile Salt, which is there found in great Quantity. I mixed together Portions of Acids and Alkalies in different Proportions, and I found, that all these Mixtures, immediately after they had been made, shew'd Signs at once both of Acids and Alkalies; and that after they had been kept a sufficient Time, they gave Marks but of one, that is, either of the Alkali, or the Acid; but I never found out the Point necessary for the disappearing of both. I do not, however, pretend to conclude any thing from this last Observation.

Sixthly, In my Examination of the Portions of different analysed Plants, in which after an Union of the acid and volatile Salts contained in the Liquor, one of these two Bodies was still perceptible by its proper Marks, it seem'd to me, that the disappearing of the Signs of the volatile Salt happen'd much more frequently than that of the Acid. 'Tis possible that in the Number of Plants which I analysed, there might offer too many Cases of a particular Kind, which hinders me from concluding so strongly in favour of my Observation, as if I had made a much greater Number of Analyses. However, what, among others, may sometimes justly be drawn as a Consequence of my Observation, is, that, in general, the Sum of the Acids in Plants surpasses that of the volatile Salts, as we shall prove more particularly by what follows. Hence it appears, that Plants in general will afford more Acids than volatile Salts in Distillation, and that it is the Overplus of these Acids that renders them thus perceptible, as we have already explained. In that Case also, where no more Acids are elevated in Distillation than volatile Salts, it is possible, that after that Union the Acid should still seem to prevail; as the common *Sal Ammoniac* colours blue Paper with a dark Red, and after twenty-four Hours gives a reddish Brown to a Solution of Turnsole. But it

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is easy to distinguish this Effect from that of an Acid when free and disencumber'd, at least to a certain Point, from other Bodies in which it may be engaged, as the Acid of *Sal Ammoniac* is in the volatile Matrix, which makes the other Part of that Salt.

Seventhly, I have often observed in examining some Parts of analysed Plants, that they contained an Acid more or less envelop'd with oily Particles, which sustained themselves in the aqueous Part of the Liquor by favour of that Acid; that these two Bodies rising together in Distillation, and remaining afterwards united, at least for a certain Time, it happen'd that the Acid in that State either did not appear at all, or render'd itself perceptible by very obscure Signs. But as the Liquors impregnated with different Particles are always subject to an internal Fermentation, this Fermentation, paving the Way for the Acid of the distilled Portion to disengage itself, makes it then manifestly appear, that the Inferences from this way of Reasoning are just; that is, that the Acid did not shew itself, because it was envelop'd with oily Particles: And that it is discovered afterwards only by getting rid of them, appears, if we observe, that during all the Time in which the Acid begins to shew itself, and continues more and more so to do, the Oil, which, separated from the Acid, and left to itself, can no longer, in such a State, support itself in the Liquor, but is precipitated commonly in the Form of a mucilaginous Substance, increases in Quantity always in proportion as the Acid of the Liquor makes the greater Appearance. One might also observe the same Effect in several distilled Waters, which at first, and even for a considerable time, remain of a limpid Clearness, and shew no Signs of Acids; but after being kept a sufficient time, not only grow sour, but also deposit at Bottom a slimy Matter, which is so thick, and in so considerable a Quantity, as would hardly be believ'd, did we not see it. See the Article *ACETUM*.

To proceed, We ought not to be surpris'd, that Acids, the most Part of which in a Plant belong to a fixed Matrix, being urged by the Fire, abandon their Matrix to enter into an intimate Union with oily Particles with which they rise, and by which they are envelop'd, as it has been said. For we have shewn in other Memoirs, and in the Beginning of this, that oily Substances have a Property of strongly seizing upon Acids that are lodged in fixed Matrices, by which means, when they rise in the Air they draw out and carry up with them the Acids in which they have fixed; and that they contribute infinitely to the Disengagement of a great Number of Acids, which without that Assistance, and with the bare Action of the Fire, would never be brought to quit their Matrix, or at least would not do it, but with a great deal of Time and Difficulty. Plants then actually containing Plenty of oily Particles, which have a Faculty of fastening themselves upon the Acids of their Salts, and acting upon them after the same manner, as we shall describe more particularly, when we come to speak of the saline Substance which remains in the Retort after the Distillation of the Plant, it will not at all seem surprisng, but is, on the contrary, very natural to think, that vegetable Acids always rise in Company with oily Particles, with which they afterwards remain more or less intimately united, according to the Diversity of the particular Circumstances which concurr'd to that Union, and which it is impossible to enumerate.

The Union of vegetable Acids being such as has been said, we may easily conceive why these Acids sometimes last for a considerable Space of Time in the same Liquor with alkaline volatile Salts, without penetrating and uniting with them, and how they came afterwards to do so. For, first, as long as these Acids are envelop'd, in a certain Degree, with oily Particles, they are incapacitated, by this Envelopment, to pierce and open themselves a Way into the interior Parts of these Salts: One might even venture to say, that however free and bare vegetable Acids might become in general, they always preserve an Alloy of oily Particles, which tempers their natural Vivacity, and thus prevents them from being so corollive, and from acting with so much Force and Violence, as they would do without such a Mixture, and as mineral Acids do in fact, which contain fewer oily Particles. And it is really possible sometimes so well to disengage the Salts of Vegetables from their oily Particles, that the Acids which result from thence become infinitely more active and corollive, than otherwise they would ever have been. If then but a small Share of oily Particles can so effectually diminish the natural Action of vegetable Acids on all alkaline Bodies in general, it is plain, that by increasing the Quantity you may at last render it sufficient for entirely preventing all Acids from entering into the Pores of volatile Salts; and that when afterwards this Quantity shall have had Time to diminish by the Assistance of a Fermentation, which shall occasion the Division of a certain Quantity of oily Particles, the Acids being more free and disclosed, and making a less Bulk, will in that State insinuate with more Force and Facility into the Pores, into which before they could not obtain a Passage.

All that we have just now said and observed is of great Use for the understanding of the following Observation, which I made



made on the first Portions of some Analyses, in which, tho' immediately after the Distillation I had only perceived the Marks of volatile Salts, and no Sign of Acids, after they had been kept a sufficient Time, I could no longer perceive the Marks of volatile Salt, but only of Acids. The Reason of this, in my Opinion, was, that these Acids, tho' considerable enough for Quantity in the Parcel of Liquor, were yet in a manner, enveloped by the oily Particles, that in this State they could neither shew themselves, nor cause the volatile Salts to disappear by mixing with them. But when Fermentation has had Time to disengage the Acids from a certain Quantity of oily Particles, which in this as well as in the preceding Observation are commonly precipitated to the Bottom of the Liquor under the Form of a Mass of a greater or a less Thickness, these Acids being more free, and more developed, will not fail in that Condition to obliterate the Marks of the volatile Salt in the Liquor, by uniting itself to that Salt; and as the Quantity of Acids surpasses that of volatile Salts, the Overplus of those Acids, which, not being combined with volatile Salts, remains in this State of Development, must under the Operation give evident Tokens of Acidity, which the Mixture of oily Particles hinder'd it from shewing before.

To conclude, I made one Observation more upon the first Portions of some Analyses of Plants, which was, that though neither the Acids nor the volatile Salts were perceptible in the Operation, they yet excited an acrimonious and pungent Savour upon the Tongue, which left no room to doubt but that these Portions contained a considerable Quantity of Salt. It appearing therefore by these Experiments, that this Salt was neither an Acid developed, nor an alkaline volatile Salt, it can be no other than a complete Sal Ammoniac; that is, it has undergone no such thing as a Decomposition by Analysis, but contains in itself the Acids and volatile Salts as intimately united together as they were in the Plant itself: For we cannot say, that this Salt was compounded of Acids, and a fixed Matrix, because this Matrix was hinder'd from rising with it, at least entire, in the Distillation, especially in the first Portions of the Analysis, where but a moderate Fire is used. There can be none then but a Sal Ammoniac that can rise in the Case before us, which consequently is the true Cause of that acrimonious and pungent Savour in the first Portions. It is true, and we have already observ'd it, that common Sal Ammoniac will in time dye a reddish Brown with Turnsole, which I never perceived in the Sal Ammoniac of our first Portions; but the oily Particles, which are always mix'd with the Salts of distill'd Portions, might on that occasion hinder the Sal Ammoniac from exciting that reddish-brown Colour, and so much the rather, because it does not excite this Colour but after a good deal of Time and Pains, even when it is in its natural State, that is, when it is free and disengaged from every oily Substance. *Memoires de l'Acad. Roy. des Scienc. 1720.*

It appears by the Observations already made, upon the Analyses of animal and vegetable Substances, and particularly from the Alterations, of which several Parts of analysed Plants are susceptible, that the volatile Salts, scattered in the different Portions of analysed Plants, may absorb, and keep conceal'd, those Acids which did not belong to them in the compound Body, as well as those which were naturally united to them before the Analyses, and which have risen along with them in Distillation. It appears also, that the Observation with respect to Acids, which on certain Occasions subsist together with volatile Salts, without being join'd to them, does not prove, that there are not other more disentangled Acids, which may sometimes be join'd to them; and that the less, because I have shewn that these very Acids, which had not as yet contracted an Union with these Salts, did not fail to do so afterwards, when they had arrived at the same Degree of Freedom and Disengagement. It moreover follows from what has been said, that independently of volatile Salts, which very often are not found in several Portions of distilled Liquors, a great many Acids may be sheathed up in the said Liquors by simple oily Particles: Consequently, if no Acids appear, or an inconsiderable Quantity of them, in certain Portions of analysed Substances, which are impregnated with volatile Salts, or oily Substances, we have not from thence a Right to conclude, either that such Portions contain no Acids at all, or that they contain none but such as appear. We should often fall into palpable Mistakes, if, in computing the Degrees of Acidity in a Plant, we should take our Estimate from those Acids discovered by the Analysis of that Plant; for Instance, the Leaves of Sorrel yield a very sour Juice, in which, if one was to judge by the Taste alone, he would conclude there was a great Quantity of Acid: Besides, when the essential Salt is drawn from that Juice, its Crystals are sour, and resemble Cream of Tartar. In a word, every Circumstance declares, that this Plant yields Acids, and that in the different Portions of Liquor, raised by the Distillation of it, Acids will always be particularly discovered; yet as Sorrel also yields a great deal of volatile Salts, which diffusing them-

selves almost every-where, as I shall afterwards shew, cover and sheath up at least a large Share of the Acids, with which they ascend, if one was to over-look this Circumstance of the Salts, and allow one's self only to be guided by Appearances, we might possibly be induced to think in examining the different distill'd Portions of several Sorts of Sorrel analysed at different times, and at different Ages, that this Species of Plant contained fewer Acids, or yielded less of them in Distillation, than other Plants, which in reality contain a great deal less, and in Distillation yield a smaller Quantity, but in such a manner, that each Acid at that time finds nothing in the distill'd Liquor, which can hinder it from appearing what it really is: And what, in my Opinion, plainly proves that according as the volatile Salts of the Sorrel are more or less diffused and distributed with the Acids in the different Portions of the Analysis, so the fewer or more Marks of an Acid this Plant must afford; what, I say, in my Opinion, proves this, is a Reflection upon the two following Experiments, an Account of which will not perhaps be disagreeable. When we analyse the Leaves of Sorrel by means of a Retort, and a common Fire augmented by Degrees, after the first Portions are drawn away, the distill'd Liquor ordinarily has the Marks of volatile Salts, which rise at first, which continue to do so afterwards, and which towards the Close of the Distillation come in still greater Abundance, either under a liquid or a dry Form. As for the Acids, the first Portions of the distill'd Liquor have no Marks of them. The succeeding Portions have also very often but faint Marks of them, and, after they are kept for some time, none at all, and that for the Reasons already assign'd. But if instead of a common Fire we use a Bath-heat for the Distillation of the Leaves or Juice of Sorrel, the gentle Heat of it, sufficient for the first volatile Salts which have been mentioned, that is, for those which rise first, and with most Ease, but insufficient to disengage, and raise, at least to any considerable Degree, the Acids of the Plant, will by that very means lay a Foundation for both to rise at different times; for by still carrying on the Distillation with a stronger Fire, the Liquor which will next succeed, and contains fewer volatile Salts, because a great Quantity of them have already been raised in the first Portion of the Distillation will give more considerable Marks of Acidity, than if the Analysis of the same Plant had been carry'd on in the ordinary manner.

The other Experiment is this: If instead of analysing fresh Sorrel-leaves, we begin by allowing them to macerate for a considerable time, so that the Fermentation, which is often a sort of, or Beginning of, the Analysis, may have laid a Foundation for the Disengagement and Evaporation of a certain Number of volatile Salts; and if after this natural Operation we proceed to distil the Leaves of Sorrel, whilst they are in this State, in the ordinary manner; and if we compare this Analysis with that of the same fresh Sorrel which has suffer'd no Maceration, we must acknowledge, that the macerated Sorrel affords, both in the Beginning and whole Course of the Analysis, not only a great many more Marks of Acids than the other, but that it also affords fewer Marks of volatile Salts, and that only towards the last Portions; whereas without Maceration it would have yielded volatile Salts from the very first, as I have already observed. In a Word, these two Analyses of the same Plant resemble one another so little, that one would readily take them for the Analyses of two different Plants, which may indeed differ less from each other, than these different Analyses of the same Plant. We have still a great many more Plants naturally loaded with Sal Ammoniac, the Fermentation of which causes a great Quantity of volatile Salts to exhale, and by that means lays a Foundation for a great deal of the Acids of the Plants to be discover'd in the Analysis. This Fermentation also often is the Cause that a particular Plant analysed, gives some Marks of Acids, which without this Assistance would have afforded none, as I shall shew in another Place, where an additional Proof may be found, that there are a great many Acids so well wrapt up by the great Number of volatile Salts, which have ascended with them in the Distillation of the Plant, that one could not have suspected them to be lodged in the same Place without that Train of Reflections which naturally give Rise to the Experiments and Observations to be made in their proper Place.

The Case is not the same with the Juice of Lemon, as with that of Sorrel; for though they be both very sour, yet that of the Lemon differs from the other, as it affords very few Marks of a volatile Salt; from which Circumstance two very considerable Differences result, in the Analysis of each of the Juices. The first is, that, in the Lemon Juice, the Acids, rising alone, and without any Mixture capable of absorbing them, are infinitely better discovered, and, appearing from the very first Portion, continue to augment to the very last: Whereas Sorrel, when analysed, ordinarily gives no Marks of Acids, or very faint ones; but, in Recompence, it is richly impregnated with volatile Salts. The other Difference is this, that tho' the Lemon Juice has been left in Maceration for a considerable



derable time, yet the Acids, afterwards drawn from it by Distillation, do not, upon that Account, appear either more disentangled, or in greater Abundance, than those which come from it before it is subjected to Maceration; which is quite the Reverse of what we have observed in the Analysis of fermented Sorrel. This may be very well accounted for, from what has been said; for if it is true, that the Fermentation, preceding the Analysis of the Sorrel Juice, does not lay a Foundation for a greater Number of Acids appearing, but because it dissipates a great deal of the volatile Salts, which would have covered and sheathed up a good Part of these Acids; this Fermentation, I say, which is necessary for discovering the Acids of the Sorrel, is of no Effect for discovering those of the Lemon; which not being in the same State with those of the Sorrel, in point of the volatile Salts, and which rising naturally in Distillation, without being accompanied with volatile Salts, have no Need, like the Acids of Sorrel, of the Assistance of Fermentation, to give another Direction to these Salts, and turn their Effects another way. Hence we see, that the Analysis of Lemon Juice newly extracted, and of that which has been macerated, should not sensibly differ from each other, with regard to the Disentanglement and Quantity of the Acids, which are yielded by their respective Juices; and, consequently, what I have observed on the different Analyses of the Juices of Sorrel and Lemon, should naturally happen in the same manner, according to my Reasoning, which, in some measure, justifies it.

Moreover, in examining a great Number of Plants, naturally loaded with a great deal of essential Salt, and which was such, that its Acid, or at least a Part of its Acid, might easily be disengaged from its Matrix, during the Distillation of the Plant, and discover itself in the different Portions of the Analysis; provided it finds nothing there to hinder it, it appeared to me, that we might properly enough reduce to four Classes all the Differences observable in the Analyses of Plants, with regard to their Acids, and their volatile Salts, which do not always appear disseminated and scattered, in the same manner, in the different Portions of each Analysis; and which, in every Species of Distribution, have appeared, to me, to preserve a certain Order. 'Tis principally from the Analyses which the late Mr. *Bourdelin* has made, that I have drawn the following Observations.

I make the first Class to consist of those Plants, which, in the Analysis, do not ordinarily give Marks of a volatile Salt, or at least give but very faint and languid ones, which may pass for nothing; such are Rennets and Calville Apples, dry Martin-pears, and Frankreal-pears, &c. In these kinds of Plants the Acid appears sensibly, from the first Portion of the Analysis, and continues to appear all along, more and more, to the very End, when it still abounds more, and is better discover'd, because it has nothing to hinder it from so doing.

The second Class consists of such Plants as give more or less volatile Salts, but do not yield them till towards the End of the Operation. In this sort of Plants, the Acid generally discovers itself from the Beginning of the Analysis, and continues to do so still more and more, till it arrives at that Portion in which the volatile Salt begins to rise; and then the Acid either appears no more at all, if the volatile Salt is in great Quantity, or appears always much less than it would have done without the Company of the volatile Salt. It even often happens, that we discover Marks of a volatile Salt, and an Acid, in one or two Portions which come before the last: And for the last Portion itself, which is far more richly impregnated with volatile Salts than the other two, and which boils and ferments very strongly, as soon as the least Acid is poured into it, it so well conceals the Acids it has received from the Plant, that they cannot be perceived; tho', from other Circumstances, we have strong Proofs that it really contains more of them than any of the preceding Portions. We find Examples of this second Class, in the Analyses of the white Leaves of the Wild and Garden Succory, of Periwinkle, of Chervil beginning to flower, of Celery, of Roman Lettice, of Fumitory become hard, and beginning to bear Flowers and Seed, of Peruvian Bark infused in Water, of Gentian-roots, of Polypody, of Turneps, of Rampions, of Dwarf Sun-flower, of Liquorice, of Violet-flowers, of Colts-foot, of Elder, of Peaches, of Roses, of Artichoke Bottoms, of Melons, of Cucumbers, of Chestnuts, of Apricocks, of red Goose-berries, of fresh, but ripe Elder-berries, of unripe Grapes, of Buckthorn, and many others.

The third Class does not differ from the second, but in this; that the volatile Salt which, in the former, did not discover itself till towards the End of the Operation, discovers itself in the Beginning in this. As for the Acid, it often appears from the first Portion, notwithstanding the Mixture of the volatile Salt, and often it cannot be discovered at that time; but in the remaining Course of the Analysis it is found alone, or, at least, we observe nothing along with it; and that even to the End of the Process, when the volatile Salt begins again to appear, and produce the same Effects, attended with the same Circumstances as in the former Class. If any one desires Examples of this third Class, he needs only consult the ordinary Analysis of white Suc-

cory, of *Carduus Benedictus*, of the red Beet, of Spinnage, of young Onions, of Sage, of Parsley-leaves, of the Flowers of Lilly of the Valley, of Cherries, of Heart-cherries, and several others.

The fourth Class differs from the preceding, not only because the Plants, which are comprehended under it, yield, in Distillation, much more volatile Salt than those comprehended under the other Classes; but also, because that Salt is more diffused through the succeeding different Portions of each Analysis, of which there are few in which it does not discover itself; and of which there is not, for the most part, one which is not very much impregnated with volatile Salt, or which does not give evident Marks of it. As for the Acid, it shews itself, more or less, in every Portion of the Analysis, in Proportion to the Quantity of volatile Salt with which it is lodged. For Instance, tho' the Analysis of Wheat, of Rice, of Barley, and of Oats, yield, almost in all their distill'd Portions, Marks of a volatile Salt, yet the Acid does not fail to appear also, and even often continues to shew itself, from the first Portion to the End of the Process; at which time the volatile Salt abounds so much, that it intirely sheaths up the Acid which is in them. Borrage, on the other hand, and Bugloss, which, from the Beginning of their Analysis, give strong Proofs of a volatile Salt, do not discover their Acid till towards the Middle of the Operation; that is, about the middle Portions of the Analysis, when the volatile Salt begins to abound less. It sometimes happens, that in one, or, at most, two of these Portions, the Acid appears alone; but if it appears afterwards, 'tis always accompanied with a volatile Salt, and that to the very Portion which comes last, or last but one, in which the volatile Salt is found in great Abundance, and makes the Acid entirely disappear. Some other Plants which still yield, in Distillation, more volatile Salts than Borrage and Bugloss, give, for the same Reason, much fewer Marks of Acids than those Plants do, as may be seen by the Analysis of the Leaves and Stalks of white Garden Orache, when it is young, and only four or five Inches high. This may be likewise seen in the Analysis of Radish, of Hops that are young, tender, and only five or six Inches high, of the speckled Nettle, of Pellitory of the Wall, of Colly-flowers, of the Stalks of Artichokes, of Gourd-seeds, and several others.

However, 'tis in vain to examine, with all imaginable Care, all the Portions of the Analysis of certain Plants, which, to speak the Truth, have, to me, appeared very few in Number; and which, containing naturally more Sal Ammoniac than those preceding, yield also, in Distillation, more volatile Salts, since we find that they discover no Marks of an Acid; and if we did not know, that these Portions of distill'd Liquor were the Product of a vegetable Substance, and were to reflect only on the prodigious Quantity of volatile Salt which they contain, and their entire Privation of Acids, we should make no manner of Doubt, but they belonged to some animal Substance. The Plants I have in View are Mushrooms; Garden Purslane, very tender, and about two Inches high; the Stalks and Leaves of Fumitory that is young, tender, beginning to flower, and about ten or twelve Inches high. Yet tho' these Plants do not, in their Analysis, discover any Acid, we have proved, that no one has a Right, from that Circumstance, to conclude that they contain none; since the volatile Salt, which is found in great Quantity, in the different Portions of the Analysis, may cause the Acid contain'd in them to disappear. And, without having recourse, at present, to the strong Reasons which will be alledged in their proper Places, and by which we shall see plainly, that there is neither Plant nor Animal, from which the ordinary Analysis does not make an Acid rise, and sometimes in very great Quantities, tho' there afterwards appears to be very little, or none at all, in the distilled Portions, we may convince ourselves of this Truth, by considering what happens in Fumitory, Pellitory, and Mushrooms, when allowed to ferment before they are analysed; for when the Fermentation has had time to detach, from the Sal Ammoniac of these Plants, a certain Quantity of volatile Salts, and keep them from being subjected to the Analysis which is to succeed the Maceration, this Analysis does not then fail to give Marks of Acids, which, indeed, are faint and languid; but which, at the same time, it would never have given, if it had been allowed to have all the Store of volatile Salts, which it must have naturally had, without the Maceration. There is also an Observation upon Lettice, which, in my Opinion, deserves our Consideration, since it has a very near Relation to the Subject in hand.

The Analysis of this Plant, like the Analysis of many others, varies in Proportion to the Age, and different Parts of the Plant: For Instance, its Root and Stalk yield much less volatile Salt, and give much stronger Marks of Acids than the Leaves; and the younger the Lettice is, the more volatile Salt it yields, and the fewer Marks of Acids it affords in Distillation; so that we find a very considerable Difference betwixt the Analysis of small young Lettice, and that of the very same Lettice when full grown and flowering; yet as this Plant, in all its different States, never fails to yield a great Quantity of volatile Salt,



Salt, the Quantity of that Salt lays a Foundation for our thinking, that the Analysis of Lettice allows fewer Acids to appear than it really contains; that is, fewer are actually raised in its Distillation. This may be sufficiently proved by the following Observation upon the Leaves of Lettice, in two different States; in which, when analysed in the ordinary manner, they yield the strongest Marks of a volatile Salt, and the least Signs of Acids. First, when the Plant is very small, and ready to be transplanted in Ranks, in order to be made to cabbage: Secondly, when it is just cabbaged, tender, and in its best State for Salad. This Plant, analysed in these two different States, yields very faint Marks of Acids, till the last Portion but one; but yields, thro' the whole Operation, a great deal of volatile Salt; and the young Kind yields still more than the other, as I have already observed; which Circumstance inclines me to place it in the fourth Class of Plants, in the Analysis of which the Acid appears very little, or not at all. But the following is a new, and hitherto unknown, Method of making the Acid of the Leaves of Lettice appear vastly more than it does by any other Process. Instead of carrying on the Analysis of the Leaves all at once, by a single Operation, and in one Retort, the Juice must first be strongly expressed, and put into a Retort; and the bruised Leaves, after Expression, are to be put into another; and then both must be subjected to Distillation; thus performing by two Operations what others do by one. In examining each of these Analyses, I have observed that of the Juice of the Leaves of cabbaged Lettice to bear a strong Resemblance to that of the entire Leaves, when full of their Juice; that is, this Analysis yields, thro' all its Stages, a great deal of volatile Salt, and very few Marks of Acid, and that only in one Portion; whereas the Analysis of the express'd Leaves, being divided into thirteen Portions, shews no strong Signs of a volatile Salt but in the last, and some slight Marks of it in the last but one, and in the three first; but the Acid shewed itself in all the Portions except the last, and in several of them it appeared very evident, and in great Quantity.

I observed very near the same Differences in the Distillation of the Juice, and the expressed Leaves of the small Lettice; whence it appears very plainly, that if the whole Quantity of Acid, which discovers itself so clearly in the Analysis of the expressed Leaves of Lettice, be so obscurely perceived in the Analysis of the same Leaves, when entire and full of Juice, the Reason is, not because all that Quantity of Acid is less really existing in the different Portions of this last Analysis, than in that of the expressed Leaves; but because it is suppressed and absorbed by the great Number of volatile Salts, afforded by the Juice of the Plant, which must, of necessity, be wanting in the Analysis of the expressed Leaves, these being deprived of their Juice.

To proceed; what more augments the Quantity of Acids, concealed and contained in the different Portions of the Analysis of the Leaves of the Lettice, is, that besides those just now observed, which the expressed Plant affords to those Portions, they will receive a considerable Increase from the Juice: For tho' this Juice, analysed by itself, manifests but very little Acid, it will be easy to perceive a greater Quantity of them, if you cause this Analysis to be preceded by such an Operation as was performed upon the Juice of Sorrel, and upon several other Plants; which is, to let the Juice macerate for a sufficient time, or to evaporate a good Part of it in Balneo Marie.

If then Lettice, in which the Taste and common Analysis indicate so few Acids, do yet contain, and actually yield a great Quantity of them in the different Portions of their Analysis, as has been proved, we have Reason to suppose the same thing of several other Plants, which are in the same Circumstance with the Lettice, with respect to the volatile Salts, which abound in their Analyses, and the Quantity of essential Salts, with which these Plants are naturally impregnated; for the Quantity of Acids must bear a Proportion to that of these Salts, as we shall now shew, in giving the Reasons of a very common Observation upon the Analyses of vegetable and animal Substances compar'd together.

We have already observed in the preceding Memoir, and the Beginning of this, that animal Substances in general shew so few Signs of Acids, in all the Portions of their Analysis, performed in the common way, that if we were not otherwise convinced, that they really contained a great Quantity, but were to refer ourselves for Proof wholly to these Analyses, we should absolutely deny, that there was any Acid, if not in all, at least in the greatest Part of these Substances: But the Case is not the same with vegetable Substances, analysed like the preceding; for it is observed, that the greatest Number of these Substances disclose a good Quantity of Acid; that there are but few of them which manifest but a very small Quantity, and yet fewer which exhibit none at all.

The most easy and obvious Hypothesis, to account for this Difference in the Analyses of Plants and Animals, is, that Plants in general contain a far greater Quantity of Acids than Animals; and consequently the Portions of their Analyses being much more impregnated with them, it is natural, that they

should also manifest them much more: But we have already shewed, both in this and the preceding Memoir, that if we always judge of the Quantity of Acids contained in any Substance, by the Signs of it which appear in the Analysis, we should frequently be exposed to Mistakes; and so much the more, because there may be a Substance which discovers little or nothing of Acid in Distillation, and yet may contain more, or at least as much of it, as another Substance, whose Acid manifests and displays itself in every Portion of its Analysis. This may well be the Case of animal Substances, with respect to Vegetables; and, indeed, there are few Plants from which we can extract more Acids than from a great Number of animal Substances, by means of certain Processes. We shall not here enter into a nice Detail of Acids, which is so much the less necessary, as our Business is not to compare Plants with Animals in particular, but to make a general Comparison of all vegetable with all animal Substances: But we may always know in general, by what Rule to guide our Judgments on that Subject, by considering the natural Composition, and relative Quantity of the two Salts, which prevail in both the Substances in Question. As to what regards the natural Composition of these Salts, we have shewn, that what abounds in Animals is a true Sal Ammoniac, that is, a Compound of Acids lodged in a volatile Matrix; and that the Salt which prevails in Vegetables, is also a Compound of Acids lodged in a fixed Matrix. The Matrix of each of these Salts, then, being a kind of Magazine of Acids, and those very numerous, as Experience demonstrates, tho' we had not found the Secret of extracting a great Quantity of Acids from animal Substances, they may yet be supposed to contain a good Quantity of them, merely from this Consideration, that they are impregnated with a great deal of Sal Ammoniac. To know whether they contain less than Vegetables, let us consider, first, that Animals being nourish'd with Plants, or other Animals who themselves lived on Plants, the Parts of the Vegetables pass with their Salts into the proper Substance of the Animals; consequently the Acids pass thither, and may there be found again. This being the Case, we see no Reason why there should be a less Quantity of Acids in the animal than in the vegetable Kingdom; or, to render the Comparison more sensible, why an Animal which lives but upon one or two sorts of Plants, and receives into himself all that is in these Plants, should contain fewer Acids in all his Parts, than an equal Weight of Vegetables in all their Parts. In short, all the Alteration that happens to Salts of Vegetables, in their passing into Nutriment for Animals, is, that their Matrix, which was fixed in the Plant, becomes volatile in the Animal; and for the same Reason, that the Matrix of Sal Ammoniac becomes fixed, in passing from Animals into Plants. But this Change in the Matrix of vegetable Salts has no relation to the Quantity of their Acids, which may as well reside in a volatile as in a fixed Matrix; and it should seem even possible for them to be contained in greater Quantities in a volatile than in a fixed Matrix, as we shall presently shew by sensible Experiment.

We shall observe, in the second Place, that when we consider, and compare together, the Juices of Animals and Plants, which are our ordinary Nourishment, it does not appear, that Plants are more impregnated with Salt than Animals; the Taste might even seem to indicate, that there are more aqueous Parts, and less Salt, in Plants than in Animals. But supposing the Quantity of Salt to be equal in both, it is easy to shew, that any Portion of the Salt, which is predominant in Animals, contains as much Acid as the like Portion of the Salt which abounds in Vegetables. Experience might even make us believe, that it contained much more; and that, even when the Portion of Sal Ammoniac contained, for Instance, in a Pound of animal Substance, is less, by half, than that of another kind of Salt lodged in a Pound of vegetable Substance, the animal Substance, by virtue of its Salt, should contain more Acids than the vegetable. There is no other way to come to a Certainty in this Matter, than to chuse two highly alkaline Salts, one fixed, and the other volatile; for Example, the Salt of Tartar, which is known to be the most powerful Alkali among fixed Salts, and the volatile Salt of Peach-flowers, which is also one of the most powerful Alkalies amongst volatile Salts. If an equal Quantity of these two Salts be saturated with the same acid Spirit, the Spirit of Salt, for Instance, you will find, that one Dram of Salt of Tartar requires two Drams and a half of Spirit of Salt; and one Dram of volatile Salt of Peach-flowers requires eight Drams of the same Spirit: Hence it appears, that, taking equal Quantities, a volatile Matrix absorbs and contains abundantly more Acids than a fixed Matrix; and, consequently, that a Quantity of the Sal Ammoniac, which is predominant in Animals, is so far from containing fewer Acids, that, on the contrary, it contains more, than the same Quantity of Salt which resides particularly in Plants.

In short, tho' one should suppose gratis, and without solid Foundation, I might even venture to say, in spite of Experiments to the contrary, that there are generally more Acids in Vegetables than in Animals, the Supposition must be carried



to an excessive Length, and beyond all Probability, to account for what we commonly observe in the Analyses of Animals; that is, why the same Process always shews, or very seldom fails to shew, the Acid in Vegetables, and commonly in great Quantity, and seldom or never shews it in Animals. One might even say, that if there were no other Difference between Plants and Animals, than that of their being more or less stocked with Acids, Animals might not indeed afford so many Marks of them in their Analyses, as Vegetables, but they would always give Marks of some Acids, either more or less, and their Analyses would not be so uniform as they are, without discovering any at all, without the Help of Mediums, of which we shall take Notice hereafter. We must then have recourse to another Cause than what has been assigned, to explain the Difference which we find between the Analyses of Plants and Animals; and we shall now shew, that, supposing as great a Quantity of Acids, at least, in Animals as in Vegetables, all that we observe in their Analyses ought necessarily thus to happen, according to our way of Reasoning, which is a natural Consequence from what has been said in this and the preceding Memoirs.

That the Acids, contained in the Compound, might shew themselves in the several distilled Portions of its Analysis, it is not sufficient, that each Portion be really much impregnated with it, but it is also necessary, that the Acids should be more free and disengaged in every Portion of the Analysis, than they were in the very Bosom of the Compound. To give an Example: As long as the Acids of Saltpetre are lodged in their natural Matrix, they shew no Signs of Acidity; but they exhibit very many when the Distillation has disengaged them from that Matrix, which remaining at the Bottom of the Vessel because of its Fixity, resides no more with them in the same Place. For it is to be observed, that if this Matrix, instead of being fixed, had been volatile, it would have risen with them, and always have rendered the Acids imperceptible; which is easily proved, by urging with Fire Sal Ammoniac after two different manners, that is, alone, and with a fixed and alkaline Medium. And, indeed, if we suppose the Operation to be made without a Medium, the Sal Ammoniac will rise entire; and the Acids not having been disunited from their Matrix, they will be found again together on the Sides of the Head, nearly in the same State, and as much encumber'd as they were before the Sublimation; and if, before you subject the Matter to the Fire, you mix it with Water and a Medium, a great Part of the Acids will remain at the Bottom of the Vessel with the Medium; and if the volatile Salt should carry off some Acids with it, they will be less in a Condition to appear after, than before the Operation, because the Quantity of these Acids will be then much inferior to those which resided in the Matrix. Hence it follows, that if we suppose a Mass of Sal Ammoniac to contain twice or thrice as many Acids as another Mass of Salt, such as Saltpetre, that is, such a one as shall have a fixed Matrix, all that shall be elevated from the Saltpetre by the Action of the Fire, will give infinitely more inconsiderable Tokens of Acids, than what shall proceed by Distillation from a Mass of Saltpetre mixed with a convenient Medium, beforehand.

This is exactly what happens in the ordinary Analyses of Vegetables and Animals; and tho' we should suppose in these last as many or more Acids than in the others, and should imagine, that there arise from them in Distillation, as many and more Acids than from Vegetables, yet, as the Salt of which they are particularly composed is Sal Ammoniac, the greatest Part of the Acids, which rise by means of the Distillation, thus rise with their proper Matrix, from which they were never separated; for which Reason, the Operation contributes nothing at all to the making of them more perceptible than they were before. As for the Acids which were separated from their Matrix, and were sublimed by themselves, and commonly at the End of the Operation, they always find in the Receiver a much greater Quantity of volatile Salts than is necessary to absorb them; and they never fail of being absorb'd, if you don't take care expeditiously to separate these Acids by way of Rectification; and oftentimes, how speedy soever you are, either the Acids have already disappeared, or you can perceive but very few of them. This gives Occasion to observe, that when the Analyses of Animals manifest some visible Acids, they are never such as rise with their Matrix, and never abandon it, but such as, after having been separated from it, came over at the End of the Operation, in proportion to the Heat of the Fire. Therefore if you have a mind to have a greater Quantity of these Acids appear, you must labour to disunite a great Number of them from their Matrix, to make them rise separately, and to prevent their Reunion. A Method not commonly used in analysing animal Substances, the Neglect of which will render a Part of their Acids imperceptible, is as follows:

The first Step in this Process is Maceration, which produces in animal Substances what we have already observed it to produce in Vegetables, that is, it makes way for a great Number of volatile Salts to disengage themselves from their Acids, and

to disperse themselves in the Air, or renders them more disposed so to do upon the least Heat. By this means you set at Liberty a certain Quantity of Acids, which could never have been done without it. For Example: It is observed, that when Urine is new, and has not fermented, its Phlegm rises before its volatile Salt, and that it shews no Sign of Acids; but when it has fermented, its volatile Salts rise first, then its Phlegm, and, lastly, a red Liquor, which is manifestly pregnant with Acids.

The second Step is, to intermix a fixed and alkaline Medium with the animal Substance which is to be analysed, in order to disengage a greater Quantity of Acids from their volatile Matrix, and to put them in a Condition of rising afterwards separately, and to be distinguished from it.

The third is, in the Beginning of the Distillation to make use of a Heat so gentle as to be only capable, as I may say, of raising the volatile Salts, with Intent that the Acids, which will come over afterwards with a stronger Heat, may be accompanied with a less Quantity of volatile Salts; and so being less confounded with them, may make themselves more easily known.

The fourth is, to increase and continue the Fire for a long time, and at last to carry it to the utmost Degree of Violence, in order to release the Acids which were detained by the earthy Part of the Compound, and without this Assistance would never rise, or rise in so small a Quantity as hardly to be distinguished. 'Tis oftentimes for want of this Circumstance, that the Acids of animal Substances fail of appearing in their Analysis; for those Acids which come over towards the End of the Operation, are the only ones which can be made to appear, because no others have been well disengaged from their volatile Matrix.

Lastly, As soon as Distillation is finished, we must set about Rectification, especially of the last Portions, in order to separate as speedily as possible the Acids, which lie there confounded with the volatile Salts, and not give them time to reunite with their first Matrix.

This Method being regularly observed in the Analysis of animal Substances, if we should not be able to extricate all the Acids, we shall however always discover a great Part of them.

As to what regards, at present, the Analyses of Vegetables, the greatest Part of their Salt being the Opposite of Sal Ammoniac, or, what amounts the same, the most part of their Acids being naturally engaged in a fixed Matrix, when the Fire has disengaged and carried them aloft, they don't find their Matrix again in the Receiver, nor rise with it, as do the Acids of Animals; hence they lie more open than those Acids, and more easily preserve themselves in that bare and open Condition in which they were put by the Fire. 'Tis true, however, and we have already observed it, that several Plants yield volatile Salt in the Analysis, and oftentimes enough even to make great Part of their Acids to disappear. But it must be considered, that as Plants naturally impregnated with Sal Ammoniac never contain so much of it as Animals, and that as their Sal Ammoniac is always joined with a much greater Quantity of another Kind of Salt, which is not in Animals, so they not only have always fewer volatile Salts, but also the Proportion or Quantity of these Salts, with respect to that of the Acids, is always less in the different Portions of the Analyses of Plants than of Animals. And indeed the volatile Salts raised from an animal Substance by Distillation, have scarcely, to speak properly, any thing in the distilled Liquor to balance them, except the Acids, which they before contained in the Compound, and which, in this very Liquor, are found in less Quantity, in proportion to the volatile Salts, than in the Compound itself, as we said before; whence it comes to pass, that these Salts are always more than sufficient to answer the Acids, and consequently to make them disappear. But for those volatile Salts, which come over from a vegetable Substance, besides the Acids which they contained in the Vegetable itself, they are also to answer to those which proceeded from another Matrix, I mean a fixed Matrix, which is the most plentiful Source of Acids in the vegetable Kingdom. Wherefore as these Salts are not sufficient at once for two Sources of Acids, so the same Process, that will hardly render manifest any Acids in animal Substance, shall commonly make them appear in Plants which yield the most volatile Salts. And if it happens, in some Analyses of Plants, that the Quantity of volatile Salts is large enough to hinder the Acids from rendering themselves perceptible in the Process just before-mentioned, which very seldom happens, if we use the same Method upon those Species of Plants, which we before recommended for discovering the Acids of Animals, we shall find by Experience, that this Method will still meet with fewer Obstacles, and consequently still operate with more Dispatch, both upon Vegetables and Animals.

We have no more to do at present, but to make some critical Reflections on the Analyses of Plants, with respect to the Acids raised from them by Distillation. And, first, when we consider only the Acids which offer themselves to View in these Analyses, without looking any farther, or at least with-



out duly reflecting, that there are always in a Plant concrete and essential Salts, which actually contain large Quantities of Acids, such as Saltpetre, from whose Bosom the Acids we speak of proceed, we might be ready to imagine, that those Acids, which the Analysis represents to us under a fluid Form, disengaged from earthy Matter, and sufficiently free and disclosed, were after the same manner in the Plant itself; and that they were not there lodged, as they really are, in a solid Matrix, in Conjunction with which they formed a concrete Salt.

A second Error into which the Analysis might be ready to lead us, is concerning the Quantity of Acids which offer themselves to our Senses. Here perhaps we may inconsiderately assure ourselves, that some Plants contain more or fewer Acids than others, according to the Measure of what we see in them; but how 'tis possible for us to be mistaken on this Subject, has been sufficiently proved in the Course of this Memoir.

We shall observe, in the third place, that the Acids which are dislodged by the Analysis from the fixed Matrix, do not always remain in that destitute State, but frequently possess themselves, as we have said, of other Matrices, either saline and volatile, or purely sulphureous, with which they form new Compositions. So that all these Metamorphoses, which are the Effects of the Analysis, cannot chuse but deceive us as to the natural Order and Disposition of the Parts of the Plant.

Lastly, the Analysis of Plants plainly lets us see the Acids in them; but these Acids are so much blended and confounded with other Substances, that it is impossible to distinguish their particular Character; and thus all Plants appear to us, by this way, to contain the same Acid. It is however a Matter of Importance to understand and distinguish the particular Nature of the Acids of Plants, such a Knowledge having a great Influence towards an Insight into their Virtues; for it is very true, that different Acids, lodged in the same Matrix, form Compounds of very different Properties; for Example, natural or artificial Saltpetre, and vitriolated Tartar, have the same Matrix, but by no means the same Virtues. Mercury, penetrated by the Acids of Spirit of Salt, is much more corrosive than when it is impregnated and covered with those of Spirit of Nitre; consequently two Plants, whose Effects are different, and, which in regard to their Analyses, do not appear to differ in Nature, nor even in the Quantity of their Acids, may yet differ very much in this respect, and to this Difference be accountable, if not wholly, at least in part, for the Difference of their Effects. If to what has been said on the Comparison of the Acids of several Plants, we add the false Resemblance which Analyses may represent to us, in comparing other Substances of which each of those Plants are compounded, and which, tho' really different in the natural State of every one of those Plants which are thus compared, do yet appear, after the Analysis, under a like Form, this Reflection may perhaps serve to account for the Observation made on *Solanum furiosum*, and the *Brassica capitata*, one of which is Poison, and the other Aliment, and yet in their Analysis they produce Substances so much alike in Appearance, that you would say, these two Analyses were made of one and the same Plant. *Memoires de l'Acad. Roy. des Sciences*. 1721.

In the Course of this Work, I have been obliged to give such Analyses of Plants, Animals, and Minerals, as I could find in the best Authors; and amongst others, in *Tournefort*, who has employed some Methods of examining into the specific Natures of Plants, with which the Reader must be made acquainted, in order to his understanding the Inferences from the Experiments he will meet with. I shall therefore insert the following Extract from the Preface to Dr. Martyn's *Tournefort*.

1. By the Chymical Analysis of Plants is meant, the Separation of their Principles, by means of Fire, and proper Vessels; to which End we distil fresh Plants in an Alembic, or in *Balneo Maria*: Or before you proceed to distil them, they are to macerate or digest for some time, according to the Nature of the Plants, or the Intention that you have: It is proper to separate the Substances which are obtained from it, into Portions of four or six Ounces, the better to examine separately their Characters. You commonly draw off by this means the Phlegm, the spirituous Water, or the burning Spirit of Plants; when the Distillation is ended, you put the *Residuum* into a Retort, and giving Fire by Degrees, you draw off from the generality of Plants an urinous Spirit, a volatile concrete Salt, and a fetid Oil.

From the Caput Mortuum lixiviated, we separate by Filtration and Evaporation the Salt that was mixed with the Earth.

2. By acid and alkaline Salts, are meant those two Kinds of Salt, to which the Physicians and modern Chymists have given these Names. See the Articles ACID and ALKALI.

3. By essential Salt, is meant that which forms itself by the Crystallization of the Juice of Plants: We find this essential Salt in the Extracts of such whose Juice does not crystallize.

4. By the volatile Salt of Plants, is meant the Salt, which, in the Distillation of Plants by the Retort, sticks to the Sides of the Receiver.

5. By the fixed Salt of Plants, is meant the Salt which is made by Elixiviation of the Ashes of Plants burnt, or from the Caput Mortuum of those which are analysed.

6. To discover the Acids, we have not only made use of Salt of Tartar; Lime-water, Spirit of Sal Ammoniac, and such-like Substances, with which Acids generally ferment; we use likewise the Solution of Turnsole, or blue Paper, which is nothing else but common Paper, coloured with Turnsole, dissolved in common Water; the alkaline Salts make no Change on the Turnsole; the Acids, according to their Strength, redden it by Degrees, from a very faint Red to a very lively one: You meet with the Turnsole commonly at the Colour-shops; they are little Cubes of a deep-violet Colour, and give a blue Tincture; but it is a Colour the most susceptible of Alteration that I have yet found; for the weakest Acid will change it: Milk is also sometimes made use of, to try if certain Acids will curdle it.

7. To discover the alkaline Salts, we have used not only the Spirit of Nitre, of Salt, of Sulphur, of Vitriol, and other Acids, with which Alcalies commonly ferment; but also of corrosive Sublimate dissolved in common Water: Acids do not at all change the Colour of this Solution; but it becomes obscure, milky, yellow-orange-coloured, and curdles according to the Strength of the alkaline Salts: These Salts also change white, green, or curdle the Solution of Galls, and that of Copperas; but these two last Experiments are not so certain as those of the Sublimate; for there are some Acids, as we shall see hereafter, that change also the Solution of Copperas, and the Infusion of Galls.

8. As Sal Ammoniac discovers itself by its volatile or urinous Salt, Oil of Tartar, or Lime-water, has been used to discover whether there be any Sal Ammoniac in certain Plants; for then they emit an urinous Spirit, like that which exhales from Urine, or Sal Ammoniac, when they are mixed with Oil of Tartar, or Lime-water: Lime-water and corrosive Sublimate, combined in a certain manner, with a Solution of Sal Ammoniac, distinguish also the Nature of the Sal Ammoniac; for the Solution of this Salt, mixed with Lime-water, hinders its becoming Yellow, or Red-orange: When we pour on the Solution of Sublimate corrosive, the Whole becomes white as Milk; on the contrary, Lime-water, mixed with the Solution of Sublimate, turns yellow or red as before, altho' it is join'd to that of Sal Ammoniac. Thus, as the urinous Salt of Plants is not altogether without Acid, I believe it is better to say, that a Plant acts by a Salt approaching to Sal Ammoniac, than by a pure volatile Salt; and so much the more, because the Plants which yield a concrete volatile Salt, redden the blue Paper in like manner as Sal Ammoniac does, except where a great Quantity of Oil smothers the Acid, and hinders its Appearance.

9. As Nitre discovers itself by Detonation, I believe the best means to know nitrous Substances certainly, is to throw them upon burning Coals.

10. Every body knows, that the most remarkable Property of Vitriol is to blacken the Infusion of Galls; therefore we ought to mix the Bodies which we examine, with this Infusion.

11. To know whether there be Sulphur in any particular Body, it seems to be the best way, to put it in Digestion in good Spirit of Wine, to see if it draws any Tincture: The Readiness which these Bodies have to catch Fire, is also an Indication of Sulphur. The dry *Elaterium* burns at a Candle; the Extract of *Sedum majus vulgare*, C. B. does not burn at all; therefore the first contains a resinous Matter, which we do not find in the other. The oily Substances become soapy when they are mixed with Lime-water, or Oil of Tartar.

The following Experiments may serve to shew the Nature of that Salt, which we can draw from the Earth, without the Help of Fire.

Take Plaster into a low Place, where there has not been any Chimney; pound it, and put it into a Pail of Water, covering it half a Foot: After an Infusion of four Days, if the Water does not afford any Sign of Saltiness, and does not change it at all by the forementioned Experiments, let it be put again upon fresh Plaster taken from the same Place.

The second Infusion grows a little reddish, acrid, saline and bitter.

1. It made but a faint Impression of Violet upon the blue Paper.

2. It did not curdle Milk at all.

3. It did not receive any Change from Spirit of Nitre.

4. It made the Infusion of Galls muddy, and rendered it whitish; afterwards it made a pretty thick Congulum, followed with a Precipitation.

5. When it was mixed with Infusion of Vitriol, it became a dark, tawny Colour.

6. It rendered obscure a Solution of Sublimate corrosive.

7. The



7. The same Infusion, mixed with Oil of Tartar, instantly made a white Coagulum; immediately after was perceived a very considerable urinous Spirit. Mixed with Lime-water, it did the very same, without finding in either of these Experiments either Effervescence or Heat.

8. Substituted in the room of Sal Ammoniac, it whitened Lime-water, when it was added to the Solution of corrosive Sublimate; this White was not so lively as that which appeared by means of the Solution of Sal Ammoniac.

It appears by the fourth, fifth, and sixth Experiments, that the Infusion of Plaster contained an alkaline Salt; and by the seventh and eighth, that it contained Sal Ammoniac. The first discovered some Acid in the same Salt: This seems to be scattered through the Whole; for when they whiten old Houses with Lime, one may perceive an urinous Smell for a Day or two.

Beside Sal Ammoniac, the Infusion of Plaster evaporated yields Nitre, which discovers itself by Detonation: It is separated also from a marine Salt.

The Infusion of Earth, scraped from the high Roofs of Vaults, is found to be of the same Nature with that of Plaster: The Infusions used by the Saltpetre-makers of *Paris*, contain a fixed Salt, because they put a certain Quantity of Ashes in the Bottom of their Bucking-tubs, in order to purify the Saltpetre.

Beside the Infusion of Plaster, I made others with Earth of different Natures. To twenty-five Quarts of Water, I put to infuse twenty Pounds of Mould, from a Garden which had been neglected for many Years; after four Days Infusion, I passed it through a Strainer of Hair-cloth, and poured the Infusion again upon fresh Earth. The first and second Infusion did not undergo any Change with the common Trials. It was put again upon another Portion of Earth. I designed to have made still more Infusions, but the thing was hardly possible, because the Earth had consumed a great deal of the Water, notwithstanding the Precaution used to filtre it.

This last Infusion of the Earth was a little reddish, salt, and bitter; being half evaporated, it became like that of Plaster.

The Infusion of Earth taken from a Piece of Ground not dunged, that of Kitchen-garden Earth and Mould, afforded nearly the same Characters as that of Plaster, except that these last Earths sent forth an urinous Spirit more penetrating than that of the first: Besides, the Infusion of all these Earths whitened the Solution of corrosive Sublimate a great deal more than the Infusion of Plaster.

The *Natrum* or *Anatron* of *Egypt* made the same Alteration upon the Solution of Sublimate; and as in the *Levant* we find this Salt naturally in the Ground, it is no Wonder that it should have some Similitude with the Infusion of that of this Country.

The *Natrum* seems to be nothing else but a marine Salt, mixed with a natural alkaline Salt. These Salts are not perfectly united together; for if you go to steep a Piece of *Natrum* in Water, it dissolves at first only that which makes the least Resistance; and that Part being dissolved, you may see, in that which remains, a great many Cavities something like those of Sponges.

*Natrum* has the Taste of marine Salt, and crackles in the Fire; it makes no more Impression upon blue Paper, than marine Salt; it does not at all ferment with Spirit of Sal Ammoniac; it makes a white Coagulum with the Infusion of Galls; mixed with Lime-water, it does not hinder its turning yellow, when mixed with a Solution of Sublimate; marine Salt does the same; it ferments considerably with Spirit of Nitre, which marine Salt does not.

The Solution of *Natrum* renders that of Copperas of a very dirty Green, like Sea-green. This Change seems to indicate an alkaline Salt, since it comes to the same when mixed with Oil of Tartar, or Lime-water, with a Solution of Copperas; and this Sea-green is wholly destroy'd by the Mixture of Spirit of Nitre, which, uniting itself with the Oil of Tartar, causes it to part with the Copperas.

Upon these Experiments we have related touching the Infusion of Plaster, and of the different Sorts of Earth, we may reasonably advance,

1. That there is in all Earth, what we may call a natural Salt, whether the Earth has always been impregnated with it, or it is continually made by the Mixture of rotten Plants, the Dung of Animals, the Air, or other Causes which we are ignorant of. This Salt participates of Nitre, of marine Salt, or Sal Ammoniac, of Alum, and of Vitriol.

2. That in the Salt of the Earth there is an alkaline Salt, different from the Sal Ammoniac; for the Infusion of various Earths, and the Solution of *Natrum*, whitens the Solution of Sublimate corrosive, which the Solution of Sal Ammoniac will not do; on the other hand, the *Natrum* ferments considerably with Spirit of Nitre, and the Infusion of Earth, boiled a little with the same Spirit, which we do not find when we mix the Solution of Sal Ammoniac with Spirit of Nitre.

3. It appears also, that the Bodies which we draw from Earth, without the Help of Fire, afford us but small Signs of

Acid, except Alum and Vitriol. The following Observations are relating to common Salts.

I.

N I T R E.

1. Nitre makes no Impression upon the blue Paper, nor upon Solution of Turnsole, nor upon Syrup of Violets.

2. One cannot draw a Spirit of Nitre, without a very violent Fire: This Spirit reddens very lively the blue Paper, Solution of Turnsole, and Syrup of Violets.

3. Nitre inflames upon the Fire, and kindles readily: The Spirit of Nitre extinguishes it.

4. It does not curdle Milk: The Spirit of Nitre curdles it instantly.

5. It does not change the Colour of Ox's Gall: The Spirit of Nitre makes it red. I suppose, by the uniting itself with the acrid Salts, which had perhaps contributed to yellow the Sulphur of the Blood, it is a Means of making this Liquor return to its natural Colour.

6. It makes a white or greyish Coagulum, with Infusion of Galls: The Spirit of Nitre does not alter this Infusion.

7. Neither Nitre, nor its Spirit, alter the Solution of Copperas.

8. Nitre, and Oil of Tartar, make an almost insensible Ebullition, wherein there appears to be an Agitation of the Parts, like those of Dust, which you may see move about the Air in a very light Place: The Spirit of Nitre, and Oil of Tartar, ferment without Heat, but with a great Froth, and afterwards it becomes a very thick Coagulum.

9. Nitre does not hinder Lime-water becoming yellow, when mixed with the Solution of Sublimate: The Spirit of Nitre only raises a few Bubbles in the Lime-water, all appearing as transparent as before, although the Sublimate corrosive be poured upon it.

10. The Solution of Nitre, and the Spirit of Sal Ammoniac, do nothing at all: The Spirit of Nitre, and Spirit of Sal Ammoniac, ferment.

11. The Solution of Nitre, and that of corrosive Sublimate, do not immediately change; but about a Quarter of an Hour after they are mixed, they become white.

12. The Solution of Nitre, and Spirit of Salt, do not change at all. None of these Experiments discover any Signs of Acidity in the Nitre; for that which happens in the ninth is insensible; the sixth and eleventh rather shew, that it contains an alkaline Salt; nevertheless Fire draws from Nitre one of the strongest Acids that we know.

II.

S E A - S A L T.

1. Marine Salt does not alter the blue Paper, nor Solution of Turnsole, nor Syrup of Violets.

2. One cannot draw the Spirit of Salt without a violent Fire; this Spirit tinges blue Paper, and the Solution of Turnsole, of a lively Red.

3. The Solution of marine Salt whitens a little the Solution of Sublimate.

4. It muddies the Infusion of Galls, and afterwards occasions it to precipitate a little: The Spirit of Salt muddies it also, and renders it whitish.

5. It makes the Spirit of Sal Ammoniac obscure, and increases the strong Smell: The Spirit of Salt, and that of Sal Ammoniac, ferment with Smoke, and great Heat.

6. It does nothing at all with Oil of Tartar, nor with Lime-water: Spirit of Salt ferments very much with Oil of Tartar, but without sensible Heat. This Spirit does not ferment at all with Lime-water.

7. It does not hinder Lime-water from turning yellow, when mixed with Sublimate: The Spirit of Salt hinders it entirely; and the Liquor, after the Mixture of Sublimate, is more transparent than before.

It appears by the third and fourth Experiments, that marine Salt contains an alkaline Salt; and by the fifth, that it is somewhat acid.

III.

V I T R I O L.

1. The Solution of Copperas, or common Vitriol, is saline, styptic, afterwards sweetish.

2. It reddens the Solution of Turnsole, and blue Paper; but this is not a lively Red.

3. It gives Syrup of Violets a small greenish Cast, far from reddening it.

4. We cannot draw the Spirit and Oil of Vitriol without an intense Heat; the Spirit and Oil redden the Syrup of Violets to the Colour of Ox's Blood.

5. The Spirit of Vitriol colours the Paper of a very lively Red, and the Solution of Turnsole of a Red somewhat less lively: The Oil does the same, but it ferments and grows hot with Solution of Turnsole.

6. Every



6. Every body knows, that Copperas, mixed with Infusion of Galls, makes Ink ; but every body perhaps does not know, that Ink reddens blue Paper : Mixed in a very little Quantity with Solution of Turnsole, it gives it a little reddish Cast ; but this Colour is less sensible, than upon the blue Paper.

7. The Spirit of Vitriol muddies and whitens a little the Infusion of Galls : The Oil of Vitriol thickens it, makes it of an ash Colour, and it makes a thick Precipitation.

8. The Solution of Copperas, its Spirit and Oil, curdle Milk.

9. It does not change at all that of Sublimate corrosive.

10. It becomes a grey-brown and like Sea-green, mixed with Oil of Tartar, or with Lime-water. This Colour does not change, although it be mixed with corrosive Sublimate. Spirit of Vitriol, and Oil of Tartar, ferment with a great deal of Froth, and a considerable Heat ; but all these augment, if instead of Spirit you use the Oil of Vitriol, and all their Mixtures become a white Coagulum.

11. Common Water, and Oil of Vitriol, grow also very hot, and generally make a Noise ; there is no Fluid, that more easily grows hot with the Mixture of others, than the Oil of Vitriol.

It appears, by all these Experiments, that Vitriol naturally affords a great many Signs of Acidity.

#### IV.

##### A L U M.

1. Alum is a little saline, and very styptic.

2. The Solution of Alum tinges of a fiery Red the blue Paper, and Solution of Turnsole.

3. It does not alter the Colour of Syrup of Violets.

4. It curdles Milk.

5. It instantly makes a white Coagulum, with Oil of Tartar, but without Heat or Smoke.

6. It does not alter the Solution of Sublimate.

7. It makes the Infusion of Galls muddy, and whitens it considerably, throwing down a Precipitation.

8. It whitens Lime-water a little, and this Mixture does not turn yellow, when mixed with Sublimate corrosive, but it forms little white Clots like Starch ; this is perhaps occasioned by the Urine, which is employed in the Crystallization of Alum ; so we cannot conclude any thing from all these Experiments, except that Alum contains a good deal of Acid.

#### V.

##### S A L A M M O N I A C.

1. Sal Ammoniac is acrid and saline.

2. Its Solution tinges blue Paper of a dark Red : It does not at first change the Solution of Turnsole, but a Day after this Mixture becomes a reddish Brown.

3. It does not curdle Milk.

4. It does not alter the Solution of Sublimate corrosive.

5. Mixed with Oil of Tartar, or with Lime-water, it emits an urinous Spirit.

6. This Spirit coagulates, and whitens the Solution of Sublimate. From Sal Ammoniac one may also draw an acid Spirit, like the Spirit of Salt ; thus the Sal Ammoniac appears to be a marine Salt united with an urinous one.

7. The acid Spirit of Sal Ammoniac hinders the Lime-water's changing Colour, when it is mixed with the Solution of Sublimate ; but the whole Mixture becomes white as Milk, if you pour on the urinous Spirit of this same Salt, the Sal Ammoniac thus causing the same Effect upon Lime-water and Sublimate, as its urinous Spirit does. It is certain, that this is the urinous Part, and not the acid Part of this same Salt, which whitens the Lime-water, when mixed with Solution of Sublimate. Urine whitens it more faintly than the Solution of Sal Ammoniac.

8. The acid and urinous Spirit of Sal Ammoniac ferments with Heat.

9. If you pour the acid Spirit of Sal Ammoniac upon Lime-water tinged by the Sublimate corrosive, the Whole becomes transparent ; and all this becomes white as Milk, if you add the urinous Spirit of Sal Ammoniac. The Spirits of Salt, of Vitriol, or Sulphur, perform the same as the acid Spirit of Sal Ammoniac.

#### VI.

##### T A R T A R.

1. Tartar, which is nothing else but the essential Salt of Wine, is sourish.

2. Its Solution reddens the blue Paper, and the Solution of Turnsole, as lively as Alum.

3. It whitens Lime-water, but it does not hinder its becoming a Red-orange, when mixed with the Solution of corrosive Sublimate.

4. It makes no Change when mixed with corrosive Sublimate, or with Infusion of Galls.

5. It does not change with Spirit of Sal Ammoniac.

6. Mixed with Oil of Tartar, it does not receive any Change.

7. The Spirit of Tartar contains a good deal of Acid ; it gives a lively Red to the Solution of Turnsole, and renders the Syrup of Violets of a reddish Brown.

8. It makes a Coagulum with *Oleum Tartari per Deliquium*.

9. Mixed with Lime-water, it does not change Colour ; but if you pour upon the Mixture a good deal of the Solution of Sublimate, the Whole becomes whitish. Thus it is probable, that beside the Acid, this Spirit contains an urinous Part ; but it does not appear so strong as one would judge at first by its Smell.

10. Mixed with the urinous Spirit of Sal Ammoniac, it thickens, becomes whitish, and makes a thick Coagulum.

11. It renders whitish the Solution of corrosive Sublimate, and makes a Coagulum, the Grumes of which are of the same Colour.

12. It does nothing at all with the acid Spirit of Sal Ammoniac.

13. The Salt of Tartar dry, or dissolved into Liquor, which is called Oil of Tartar, is acrid, and very bitter ; this Bitterness does not go away but by the Mixture of a great Quantity of acid Salt.

14. The Oil of Tartar, and Solution of corrosive Sublimate, make an orange Colour, which approaches more or less to a Yellow, according as the one or the other of the Liquors predominate ; but the Whole becomes transparent by the Mixture of an acid, corrosive Spirit.

15. It does not give any considerable Change to Spirit of Vinegar ; one discovers only that Kind of trembling, where some Parts are stirred like the Appearance of Dust in the Sun.

16. Oil of Tartar, and Spirit of Vinegar, mixed, don't forbear turning yellow, when mixed with Solution of Sublimate.

17. Oil of Tartar ferments with the corrosive acid Spirits.

18. Oil of Tartar, and acid corrosive Spirits, don't forbear turning yellow, when mixed with Solution of Sublimate.

19. Oil of Tartar, and the urinous Spirit of Sal Ammoniac, don't change when mixed ; but the Whole becomes thick, and white as Milk, when you pour on the Solution of Sublimate.

20. Oil of Tartar turns Syrup of Violets green.

21. Oil of Tartar thickens the Infusion of Galls.

#### VII.

##### L I M E - W A T E R.

It is not necessary to repeat here what we have already said concerning Lime-water : We will only remark,

1. That it becomes very white, when mixed with Oil of Tartar ; it makes a very thick Coagulum, which seems to indicate some Acid in Lime.

2. Mixed with the corrosive Acids, it becomes more clear ; the same also when mixed with distilled Vinegar.

3. Mixed with the urinous Spirit of Sal Ammoniac, it turns white.

4. Mixed with a strong Infusion of Galls, it becomes thick, greyish, approaching to brown ; and one may observe upon its Surface a black Spot, like a Drop of Ink : Thus Lime-water seems to have something of Vitriol.

#### VIII.

##### E A R T H.

One may see by all these Experiments, what Affinity there is between the natural Salt of the Earth, and the other Salts whereof we have been speaking ; but moreover that of the Earth is wrapped up with a great deal of Sulphur.

The mineral Sulphur, Bitumens, Pit-coal, Jett, and Petroleum, prove, that the Earth is not without a natural Sulphur.

By the Chymical Analysis the pure Earth, without Dung or Rubbish, yields a foetid Oil, and an urinous Spirit ; the Remainder, which you draw, participates more of Alkali than Acid.

Garden Mould, well dried and sifted, gives Spirit of Wine a lemon Colour, after five or six Days Infusion upon warm Ashes.

1. This Spirit of Wine does not presently change the Colour of Solution of Turnsole ; but soon after it precipitates, and the Remainder becomes grideline. Common Spirit makes the same Precipitation, but the Liquor remains blue.

2. It becomes pretty white and thick by the Mixture of Water ; but some time after it becomes grumous, and precipitates in form of a yellowish Refin ; all which does not happen to the common Spirit of Wine.

3. It becomes very white with Solution of Sublimate, and grows warm ; this Solution, mixed with common Spirit of Wine, grows warm also, but the Whole remains clear.

4. It whitens likewise by the Mixture of Lime-water, and precipitates a resinous Matter.

5. It



5. It mixes but very indifferently with Oil of Tartar; and after these two Liquors have been well shaken together, they become thick.

6. It occasions no Change with urinous Spirit of Sal Ammoniac, nor with the corrosive Spirits, except that it heats them a little; but that is the same with the common Spirit of Wine.

7. It grows hot with Lime-water, and hinders its turning yellow with corrosive Sublimate; these Liquors make just such a dirty White, as you may observe when you mix Urine with Lime-water, and add Sublimate to it. The common Spirit of Wine grows hot also with Lime-water; but the Whole becomes a Red-orange, when you pour on the Solution of Sublimate.

These Experiments shew, that there is a Sulphur, an alkaline Salt, and Sal Ammoniac in Earth. Sulphur also appears in the Extract that remains after Evaporation of the Infusions of Earth; for this Extract makes a kind of Soap, very thick, when mixed with Oil of Tartar.

After all these Experiments, we have made no great Difficulty, *first*, to compare to Sal Ammoniac, those Salts of Plants, which, by a Mixture of Oil of Tartar, or Lime-water, emit an urinous Spirit; and which, by Chymical Analysis, produce also a volatile crystallized Salt; for it is probable, that the volatile Salt is nothing but the urinous Part of the Sal Ammoniac of the Plant, which leaves its acid Parts by Force of Fire: Thus, by the Mixture of Oil of Tartar, or Lime-water, the urinous Spirits appear to be nothing but part of the same volatile Salt dissolved in Phlegm, and the foetid Oil is as much loaded with the same Salt. We must not therefore wonder, that these Sorts of Plants are aperitive, deterfive, febrifugous, vulnerary, and the like; for Sal Ammoniac has all these Qualities.

It is proper to observe, that although Sal Ammoniac seems to be but in very small Quantity in Infusions of Earth, yet it is very considerable; for the urinous Spirit, which by the Mixture of Oil of Tartar separates itself from these Infusions, is only a Part of the Sal Ammoniac; and the white Colour which the same Infusion gave to the Lime-water and corrosive Sublimate, denotes that this Part is very considerable. On the other hand, this Salt is insensibly gathering several Days in Plants; and the Quantity of volatile Salt, which is obtained from four or five Pounds of a Plant, is commonly only from half a Dram to six Drams. Of all the Parts of Plants, the Leaves are most fit to be loaded with Sal Ammoniac; for the Roots, Flowers, and Fruit, retain more properly Acids. The Oil is commonly distributed in the Seeds, and the Phlegm diffuses itself through the whole Plant.

2. Alum seems the most proper to explain the Virtue of such Plants as are styptic, astringent, and which, by Chymical Analysis, afford a great deal of Acid, and much Earth; for these two Parts must make a Salt analogous to Alum. There are a great many of these Sorts of Plants, which also afford a little urinous Spirit; and this seems to denote, that besides the Alum, there is some Sal Ammoniac in their Composition.

3. Those which are aperitive, and from which a great deal of Acid and Earth is drawn, have perhaps a Salt not much different from that of Coral.

4. It is supposed, that the Plants which, besides the Acid and Earth, yield alkaline Liquors, or Signs of Sal Alkali, do contain a Salt like to *Tartarus Vitriolatus*, or to that Preparation of Salt of Tartar, which *Mullerus* and *Sennertus* have called *Terra foliata Tartari*, or *Tartarum foliatum*. Sometimes we have compared the Salt of these Plants to that which *Angelus Sala* has named *Oxysal Diaphoreticum*; but all these Salts, in the same manner as *Sal Ammoniac*, are modified in Plants by different Portions of Sulphur and Phlegm. See *TARTARUS VITRIOLATUS*, *TARTARUS REGENERATUS*, and *OXY-SAL DIAPHORETICUM*.

5. It is probable, that in aromatic Plants, as several skilful Persons have proposed, there is something like that Chymical Preparation, which is called the volatile, aromatic, oily Salt, or oily, volatile, aromatic Spirit; for both of them are drawn at the same time. See *AMMONIACUM*.

We commonly draw less concrete volatile Salt from these Sorts of Plants, than the others: It seems that Sal Ammoniac dissolves itself in their Texture; and then the urinous Part being separated from the Acid, and uniting itself to the essential oily Parts, that little which remains of the concrete urinous Salt insensibly evaporates. *Martyn's Tournefort*.

**ANA-MALLU.** The Name of a leguminous Shrub, which grows in the *Brasil*. The Natives make use of the Thorns of this Plant, after taking off the Bark, to bore their Ears with. They also make a Decoction of the Leaves, in Water wherein Rice has been washed, or in Whey, which they use by way of Bath, in case of an Intumescence of the Belly, either from Wind or extravasated Lymph. It is taken Notice of in the *Hortus Malabaricus*.

**ANAMIX**, *αναμιξ*, an Adverb used by *Hippocrates* to express *promiscuously*, or the mixing Ingredients together.

VOL. I.

**ANAMNESIS**, a Recollection, or Remembrance.

Hence **ANAMNESTICA SIGNA**, commemorative Signs; that is, Signs by which we discover the preceding State of the Body; as demonstrative Signs are those which shew the present, and prognostic Signs those which shew the future State. It is derived from the *Greek* Preposition *ανα*, and *μνησμαι*, to remember.

*Blancard* explains **ANAMNESTICA**, Remedies which restore the Memory.

**ANANAS**, the Pine-apple.

The Characters are;

It hath a Flower consisting of one Leaf, which is divided into three Parts, and is Funnel-shaped; the Embryo's are produced in the Tubercles; these afterwards become a fleshy Fruit, full of Juice; the Seeds, which are lodged in the Tubercles, are very small, and almost Kidney-shaped.

The Species are,

1. *Ananas aculeatus, fructu ovato, carne albida*, Plum. **OVAL-SHAPED PINE-APPLE, WITH A WHITISH FLESH.**

2. *Ananas aculeatus, fructu pyramidato, carne aurea*, Plum. **PYRAMIDAL PINE-APPLE, WITH A YELLOW FLESH.**

3. *Ananas folio vix serrato*, Boerh. Ind. Alt. 2. 83. **PINE-APPLE, WITH SMOOTH LEAVES.**

4. *Ananas lucidovirens, folio vix serrato*, Hort. Elth. **PINE-APPLE WITH SHINING GREEN LEAVES, AND SCARCE ANY SPINES ON THEIR EDGES.**

5. *Ananas aculeatus, fructu pyramidato virecente, carne aurea*. **THE GREEN PINE-APPLE, WITH A PYRAMIDAL FRUIT, COMMONLY CALLED THE SUGAR-LOAF-PINE IN BARBADOES.**

6. *Ananas fructu ovato ex luteo virecente, carne lutea*. **THE OLIVE-COLOURED PINE.**

The first Sort is the most common in *Europe*; but the second Sort is much preferable to it, the Fruit of this being larger, and much better flavoured; the Juice of this Sort is not so astringent as is that of the first, so that this Fruit may be eaten in great Quantity, with less Danger. This Sort generally produces six or seven Suckers, immediately under the Fruit, whereby it may be increased much faster than the common Sort; so that, in a few Years, it may be the most common Sort in *England*.

The third Sort is preserved by some curious Persons, for the sake of Variety; but the Fruit is not near so good as either of the former.

The fifth Sort is, at present, the most rare in *Europe*; there being very few of the Plants at present: This is esteemed the best Sort, yet known, by some of the most curious Persons in *America*, who have thrown out all the other Sorts from their Gardens, and cultivate only this Kind. The Plants of this Sort may be procured from *Barbadoes* and *Montserrat*, in both which Places it is cultivated. The sixth Sort was brought from *Jamaica*; this is not very common in *England* as yet; it is esteemed a very good-flavoured Fruit, by those who have tasted it; but it being a very backward Sort, will render it less valuable in our Climate; for this Sort will require a Month longer time to ripen, from the first Appearance of the Fruit to its Maturity, than most of the other Sorts. I have also heard of another kind of Pine, whose Flesh is very green, and the Outside yellow; but having never seen the Sort, I cannot give any Account of it. There are many other Kinds to be found in the several Countries where they are cultivated, which have arisen from Seeds, which differ in their Shape, Colour, and the Flavour of their Fruit; so that as these Fruits become common in *Europe*, all the bad Sorts should be rejected, and such only as produce fine Fruit should be cultivated.

This Fruit, which is justly esteemed for the Richness of its Flavour, (as it surpasses all the known Fruits in the World) is produced from an herbaceous Plant, which hath Leaves somewhat resembling those of an Aloe, and are, for the most part, saw'd on their Edges; but are much thinner, and not so juicy as the Aloe: The Fruit resembles the Cones of the Pine-tree, from whence it is supposed to have its Name.

Where this Plant is a Native, I believe it is hard to determine; but it was brought from the Factories in the *East-Indies*, and planted in the hottest Islands of the *West-Indies*, where they are in great Plenty, and extraordinary Goodness; but it hath been very lately that it was introduced into the *European* Gardens, so as to produce Fruit: The first Person who succeeded in this Affair, was Monsieur *Le Cuz*, of *Leyden* in *Holland*, who, after a great many Trials with little or no Success, did, at length, hit upon a proper Degree of Heat and Management, so as to produce Fruit equally as good (tho' not so large) as those which are produced in the *West-Indies*, as hath been often affirm'd by Persons who have lived many Years there: And 'tis to this worthy Cultivator of Gardening, who did not spare any Pains or Expence to accomplish it, that all the Lovers thereof are obliged, for introducing this King of Fruits amongst them; and it was from him that our Gardens in *England* were first supplied.



plied, tho' we have since had large Quantities brought from America.

The Time of this Fruit's ripening is, from the Beginning of July till September; after which time, the Fruits that ripen are seldom well-tasted, the Season being so far spent, that we have not Heat enough to correct the Crudities, which are imbibed in the long Nights, from the Vapours of the Bed, and their own Perspiration in the Day-time.

The Manner of judging when they are mature, is, by the strong Smell they emit, like that of ripe Fruits, and by gently pressing the Protuberances of the Fruit with your Thumb and Finger; and if they give way, it is a certain Sign of Ripeness: Nor will this Fruit keep above three or four Days at most, if suffered to remain on the Plant, before its high Flavour will be lost; and if cut, it should not be kept above twenty-four Hours at most, if you would eat it in Perfection. *Miller's Dictionary*.

They press out the Juice, and make of it an excellent Wine, almost as strong as Malmsey, and which intoxicates.

It is proper to fortify the Heart, and good to exhilarate the Spirits when oppress'd; it cures a Nausea, and provokes Urine; but Women with Child ought to abstain from it, because it will endanger a Miscarriage.

They make a Confection of the Ananas upon the Spot where it grows, which is brought hither whole: This is good to warm and restore a weak Constitution. *Lemery de Drogues*.

ANANCE, ἀνάγκη, properly Necessity, but by *Hippocrates* it is used generally to express Force, or Violence; such as is used in the Dislocation of a dislocated Limb, in order to reduce it.

ANANDREIS, ἀνδρείς, from α Negative, and ἀνδρ, a Man. *Hippocrates*, in his *Treatise de Aere, Locis & Aquis*, calls certain People amongst the Scythians by this Name. The Interpreters translate it Effeminate. I have rendered it Impotent. See the Passage in the Translation of this Treatise, under the Article AER.

ANANDROI, ἀνδρῶν, of the same Derivation as the former, tho' of a very different Signification: For *Hippocrates* uses this, joined with γυναικες, Women, to express their never having known Man.

ANANTHOCYCLUS. This is a kind of Plant mention'd by Mr. *Faillant*, and by him called *Couronne effleurée*.

It takes its Name from the Greek Words ἀνθ, without, ἀνθ, a Flower, and κύκλος, a Circle; because the Flower of this Sort of Plant is surrounded, or crown'd, with one or more circular Ranks of Ovaries, destitute of Fleurets.

The Species of it are,

1. *Ananthocylus coronopi Chrysanthemum exoticum minus, capitulo aphylo*; *Chamaemeli nudi facie*, *Brav. Cent. 1. Tab. 76.*
2. *Ananthocylus chamaemeli folio. An Chrysanthemum exoticum perpusillum nudum, foliis Coronopi*, *Pluck. Alm. 101. Tab. 274. Fig. 6. Memoires de l'Acad. Royale, A. 1719.*

I can find no Virtues that are particularly attributed to this Plant.

ANAPALIN, ἀνάπαλιν, on the contrary, on the opposite Side, over-against. This Word has a direct contrary Signification to κατ' ἑξῆς, on the same Side, and εὐθυαία, Rectitude.

These Words are very much used by *Hippocrates*, in speaking of the Transmutations and Fluxes of the Humours. For, in the Motions of Nature, he teaches us always to regard the εὐθυαία, "the Direction, and Strait Situation of the Parts," and the κατ' ἑξῆς, "the Situation on the same Side." Whatever Symptoms happen ἀνάπαλιν, that is, on the opposite and contrary Side, are always judged bad. So, in an Hemorrhage, τὰ ἀνάπαλιν αἱμὲρραγέωσα, "all Fluxes of Blood on the contrary Side," are condemned by *Hippocrates*. And in his Doctrine of Abscesses, *Epid. Lib. 2.* he passes the same Censure on τὰ ἐπὶ τ' ἀναρτία ῥέποντα, "those which verge to the contrary Side." But of these some are reckoned good, others bad, from Experience rather than any Reason that can be given for it. In a Crisis, the Blood ought to flow from the Nostril on the same Side with the labouring Part; as, for Instance, from the Left Nostril when the Spleen is inflamed, and from the Right Nostril in an Inflammation of the Liver. It is a thing so fully proved by long Experience, as to be taken by Physicians for an undoubted Truth, that Nature struggles with more Vigour, and better Success, in the Passages that run directly on the same Side, or εὐθυαία, than in those which lie ἀνάπαλιν, "on the contrary Side," where she seems as if she acted symptomatically, and were disabled from restraining the inordinate and unruly Motion of the peccant Matter, by making a Transition from one of the Viscera to another Part opposite to it. *Gorræus*.

ANAPAUSIS, ἀνάπαυσις, from ἀναπαύω, properly to rest again from Labour. It signifies Rest after Exercise or Labour, Ease from Pain, or Remission.

ANAPEΤΙΑ, ἀναπέτεια, from ἀναπτάννυμι, to expand. It signifies an Expansion of the Passages, through which the Blood or Juices circulate.

ANAPIALANTIASIS, ἀναπαλάντισις, from ἀναράλλω,

τῶ, a bald Person. Baldness, properly, of the Eye-brows. *Aristot. Hist. Animal. Lib. 3. Cap. 7.*

ANAPHONESIS, ἀναφωνήσις, a Species of Exercise. It consisted in Vociferation.

The first Condition, or Quality, ascribed to Vociferation, of what Kind soever, by *Antyllus*, *Plutarch*, *Paulus*, *Actius*, and *Avicenna*, is, that it exercises, exceedingly well, the Breast and Vocal Organs. *Averroes* says, that the Lungs are properly concerned in the Exercise of the Voice; and that the Use of it, upon Occasions, increases the natural Heat, cleanses, strengthens, and attenuates, and renders the solid Parts of the Body robust, pure, and not liable to be injured. *Avicenna* adds, that this Exercise improves the Complexion: The natural Heat is increased, because the Breath is in constant Motion, as well in Inspiration as in Expiration, and suffers an Attrition and Collision, by which Heat is excited. This Exercise cleanses, as it makes the Flesh more rare; and also, because by the Motion of the Vocal Instruments the internal Humidities are consumed; as is very evident from the thick Vapour which exhales out of the Mouth in Vociferation, and the Superfluities of the stale Humours which adhere to all the Canals, discharged as well in this manner as many other ways. And, lastly, the natural Heat is strengthen'd and attenuated; because the Vessels are absterged, and many Humours, as Spit, Mucus, and Phlegm, are consum'd, which, as before they obscured, debilitated, and condensed that Heat; so, by their Dispersion and Evacuation, it acquires a new Strength and Purity, and the Solids become more firm, and less liable to be affected.

The Premises being granted, it stands to Reason, that Vociferation becomes a noble Support to such as have their inward Parts affected with Humidity, and whose whole Constitution is become frigid.

For these Reasons we find it recommended by *Antyllus*, *Caelius Aurelianus*, and *Actius*, to People subject to Heart-burning, frequent Vomitings, habitual acid Eructations, Indigestion, Inappetency; to those who labour under an Atrophy, or are languid, cachectic, hydropic, asthmatic, consumptive; to Persons affected with Pains in the Thorax, or Diaphragm, or Abscesses in the Thorax; to pregnant Women, or those that labour under a Pica, that is, an inordinate Appetite for incongruous Food; and *Alexander* says it is good for Women in Labour, as it promotes Delivery: It is farther recommended by the above-quoted Authors, for Quartans, pituitous Disorders, and for People on the Recovery from almost any Disorder.

I must remark here, that there is scarce any vulgar Custom, let it seem never so trifling, but what may be found recommended by one or other of the ancient Medicinal Authors. The Advice of *Alexander*, above-quoted, is followed by almost all the common Midwives in the World, who advise frequent Vociferation to the Women in Labour, under their Care, and it seems not unlikely to have a very good Effect.

*Galen*, 8. de Med. Local. Cap. 4. recommends Unctions, Exercises, and Vociferation, applied by an experienced Artist, for Pains in the Stomach. It is the Judgment of that ancient and most excellent Physician *Aretæus*, that Vociferation is an excellent Exercise, not only in Leprous Cases, but also in the Celiac Passion.

*Actius* was of Opinion, that Vociferation was of Service in Hoarsenesses, occasioned by superfluous Humidity, in Resolutions of the Organs of Voice, and a Cachexy; and if the Voice is affected by some Distemper, or becomes spontaneously bad, *Antyllus* advises this Exercise. But as the Voice itself receives Injury not only from too long continued, or too loud Talking, but also from too much Silence, whereby the Organs of Voice forget, as it were, their Functions by Disuse; in both these Cases the proper Exercise of the Voice may be of Service; for, by this, the Defects contracted by too long and loud Talking, may be moderated; and a Shrillness in the Tone of Voice may be remedied by an Intermixture of deeper Notes; and the Exercise of the Voice may be rationally supposed to mend Defects thereof, caused by too much Silence, and the Disuse of the Organs subservient thereto.

*Hippocrates* asserts, that the Exercise of the Voice, after Supper, is beneficial in Cases where the Flesh has been wasted by too strong Labour and Exercise.

It is however to be remark'd, that Vociferation is not accommodated to Disorders of the Head, because it has a Faculty of filling the Head with Humours, and thereby affecting the Organs of Sense contained therein.

Hence it is, that *Caelius Aurelianus*, approving of it for the Epilepsy, in the Declension of the Disease, prudently adds, "provided the Patient can bear it." For the violent Vociferation, which sometimes is call'd ἀναύδισις, by *Aretæus* φωνασκία, is said by *Hippocrates* to afflict (λυπεῖν); besides that, it fills the Head, and renders it more heavy, as *Aretæus* and *Galen* testify: It is also in an extraordinary manner, according to his Opinion, pernicious to the Voice, and also makes the Veins burst: And *Caelius*, for the same Reason, disapproves Exclamation for Persons affected with the Epilepsy, as too violently straining the Parts affected; and *Pliny* the younger, with Justice, complained



plained that *Zosimus*, his Freed-man, whilst he studied the Recovery of his Voice, fell into a fresh Hæmorrhage, after the Vessel, which used to discharge the Blood, had been stopp'd. *Aræteus*, however, advises it in stomachic Disorders; and *Actius* for suppressing the Hickup: But it is observable, that almost all Authors remark, that Vociferations were never rashly or unadvisedly to be used, especially by such Persons who commence, whilst they are unacquainted with this Exercise; nor ought any Person to use it who abounds with bad and corrupt Humours: Moreover, the Voice is not to be exercised, if the Stomach is disordered with many and manifest Crudities, lest by the Action of Inspiration and Expiration, which becomes more strong and quick, whilst the Voice is increased, both with respect to Frequency and Loudness, the corrupt Vapours be more widely distributed through the Body: Wherefore it was the Advice of *Aræteus* to exercise the Voice gently, and to utter deep Sounds; because shrill Notes occasion Distentions of the Head, Palpitations at the Temples, Pulsations of the Brain, Strainings of the Eyes, and Ringing of the Ears; but the Voice, gently used, does Good to the Head. We must beware also of Vociferation after Meals, because by these the Voice is very much disorder'd: Whence *Aristotle* advised Actors, Singers, and others of such Professions, to exercise their Voices with an empty Stomach; otherwise the Breath, being heated, as well by the undigested Food, as by their Exclamations, exulcerates the Aspera Arteria as it passes thro' it, and so the Voice is spoiled: In short, we must take care, according to *Plutarch's* Opinion, that no one, conscious of a Plenitude, or of immoderate Lust, or Fatigue, strains his Voice, nor uses too violent Vociferations, and brawling Clamours; since such unequal Strainings of the Voice, and Violence, produce Ruptures of the Vessels, and Convulsions.

Next to *Vociferation* succeeds *Singing*, differing from it in this, that it consists in a certain Harmony, nor is it perform'd with so much straining of the Voice; for which Reason, besides other Advantages, it is productive of a certain Pleasure, which Vociferation has not. For *Alexander* writes, "That Porters, if they sing, feel their Burden the less," because the Mind, soothed with the Notes and Harmony of Numbers, is insensible of the Weight, and so becomes less affected. For similar Reasons the Antients generally made use of Pipes and Music for Persons mourning, and otherwise disturbed (which *Aristotle* also acknowledged); and it was customary to have Men assembled and talk of indifferent Subjects to such as were grieved at the Death of their Relations, and mourned: Since the Mind, when it turns itself to talking, is less affected with Grief; which the Antients well understanding, invented different Scenes of Diversions, in order to divert the Mind, and disengage it from the Subject of Grief, sometimes with one, sometimes with another Entertainment. With respect to Singing or Vociferation with Harmony, *Antyllus*, *Actius*, and *Paulus* are of Opinion, that it contributes nothing to Health: But I find it sometimes apply'd in Distempers; for *Cælius Aurelianus* writes, that the Exercise of the Voice compos'd in a musical Strain was found useful for mad People in the Decline of their Disorder.

Besides, *Aulus Gellius* relates, that he found it written by *Theophrastus* and *Democritus*, that playing upon Pipes, and Singing, cured the Bites of Vipers and of Men; and moreover, it was believed, and has been handed down to Posterity, that such as have the Sciatica, when in the Violence of their Pain, if they themselves, or a Musician plays soft Music, (which we read to be the constant Practice of *Ismenius the Theban*) their Pain was abated, as the Brother of *Philistion* has also acknowledged. This kind of Remedy some have thought to be the Invention of *Pythagoras*: Tho' *Soranus*, who is Author of those three Books concerning acute Distempers, translated into Latin by *Cælius Aurelianus*, reflecting upon *Asclepiades*, who profess'd to cure phrenetic Patients by Singing, very justly said, "That they are possessed with a strange conceited Opinion, who believed that Excess of Pain can be removed by playing on Music or Singing." If therefore Singing conduces little towards the Preservation of Health, and the Sound of deeper Notes is useful, Persons studious of their Health ought rather to study Vociferation than Singing: Because a Quantity of Air thus attracted distends the Thorax, opens or dilates the Belly, and all the Passages dispersed thro' the whole Body; when in Singing there can only a more useless Amusement be found, more fit to render robust Bodies effeminate, than to preserve or strengthen them. Whence I have often admired why *Socrates* (as *Plutarch* relates) us'd to exercise himself with Singing, and not with Vociferations, since by these, and by reading fast, the Excretions of redundant Humours are promoted; and those who read faster are more affected, and principally by Sweats, whilst those who read more leisurely, and less loud, are reliev'd by means of insensible Perspiration. Nevertheless, we ought always to remember the saying of *Avicenna*, That it is dangerous to strain the Voice a long time, and that, from Exercises of the Voice, Hernie and Ruptures of the Vessels are often caused. *Hieron. Mercurialis de Arte Gymnastica.*

ANAPHORA, ἀναφορὰ, from ἀναφέρω, to bring up, or upwards. In a Medicinal Sense it imports a Spitting of Blood, if join'd with ἀματῶ. But *Hippocrates*, in his Treatise de Arte, uses it to express an Obligation, or Thanks due for an Obligation. Hence,

ANAPHORICOI, ἀναφορικοί, those who spit Blood; or, according to *Ætarius*, those who expectorate with Difficulty. The Word in itself, according to Etymology, seems to signify no other than those who cast or throw up any thing from the lower Parts. *Dioscorides*, Lib. 2. de Materia Medica, as he is translated by *Cornarius*, seems to understand by it those who throw up Blood from the lower Parts at the Mouth. But *Marcellus Virgil.* restrains the Word, in the Place before cited, to a painful and difficult throwing up, or vomiting; wherein he follows *P. Ægineta*, who, Lib. 3. Cap. 28. of the Affections of the Arteries, as *Gouphylus* renders him, seems barely to understand those who expectorate with Pain and Difficulty. And, indeed, the Greeks by these Words ἀναγωγὴ, ἀνάπνοσις, ἀναφορὰ, when put absolutely, without any Addition, usually mean not so much a bringing up of Blood, as of any other Humour, or Collection of purulent Matter contained in the Breast or Lungs, which are to be evacuated by the Mouth; so that those whom *Dioscorides*, Lib. 2. τῶν εὑπορ. and everywhere in his Book de Materia Medica, calls ἀναφορικοί, are by *Hermolaus Barbarus* rightly translated "such as bring up corrupt Matter," where he has taken the Author's Sense much better than *Cornarius*.

I am, however, aware, that most Authors use this Word to signify such as spit Blood. *Scapion* restrain'd its Meaning to an Expectoration of Sanies; but to this Word most added ἀματῶ. How great the Differences are between Hæmoptoici, or Spitters of Blood, and Anaphorici, appears from the different Remedies which they require. *Gorræus*.

ANAPHRA, ἀναφρα, from ἀ Negative, and ἀφρα, Froth. It is used by *Hippocrates* as an Epithet to Stools, in order to express their being not frothy.

ANAPHRODISIA, ἀναφροδισία, from ἀ Negative, and ἀφροδισία, Venery. Impotence with respect to venereal Commerce.

ANAPIHROMELI, from ἀ Negative, ἀφρα, Froth, and μέλι, Honey. Despumated Honey, or Honey boil'd till it will no longer froth. *Blancard*.

ANAPLASIS, ἀναπλασις, from ἀναπλάω, to restore to the original Form. *Hippocrates*, in his Treatise de Officina Medici, uses this Word to express the replacing a fractur'd Bone in the same Situation it obtain'd before it was broken. In the same Treatise also, it signifies a Restoration or Renu-trition of the extenuated Flesh.

ANAPLEROSIS, ἀναπλήρωσις, Repletion in general. But it also signifies that Part of Surgery which is concern'd in restoring Deficiencies, and in this Sense is the same as PROSTHESIS, which see. Hence, ANAPLEROTICA are Applications which encourage the Growth of Flesh in Wounds or Ulcers. Incarnatives.

ANAPLEUSIS, ἀνάπλευσις, from ἀναπλῖω, to fluctuate, or float upon. *Hippocrates* sometimes uses this Word to express the Redundance of Humours fixing on a Bone, which makes it rot, exfoliate, and fall off, as is sometimes the Case of the Bones of the Jaws.

ANAPNEUSIS, ἀνάπνευσις, from ἀναπνέω, to respire. Respiration. But *Aræteus* uses it to express a Truce from Pain; as *Homer* uses it also to express a Truce from War. It signifies also Transpiration.

ANAPODOPHYLLON, (of *Anas*, a Duck, πῶς, a Foot, and φύλλον, a Leaf) Duck's-foot, or Pomum Maiale, May Apple.

The Characters are;

The Cup of the Flower consists of one Leaf: The Flowers are hexapetalous. The Foot-stalk of the Flower comes out from the Stalk of the Leaf. The Fruit is in the Shape of an Urn, in which are contained many roundish simbriated Seeds.

This Plant was brought from America, and is by some of the Inhabitants called Black Snake-root, and by others the May Apple; I suppose, because in that Month the Fruit of this Plant is nearly ripe, and is of an oval Shape, in some measure resembling a small Apple. We have but one Species of this Plant in England, which is the *Anapodophyllon, Canadense Morini*. Tourn.

This Plant is very hardy, enduring our sharpest Winters in the open Ground: It is increased by parting the Roots in August, after the green Leaves decay: It loves a moderate Soil, and for the Oddness of the Plant may merit a Place in a good Garden, although it is of no great Beauty nor Use. *Millar's Diet.* Vol. 1.

ANAPSYXIS, ἀνάψυξις, Refrigeration.

ANARISTESIS, ἀναρίστησις, from ἀ Negative, and ἀριστον, a Dinner. *Hippocrates*, in his Treatise de Insomniis, uses this Word to express the Subtraction of Dinner from a Patient.



ANARRHOEA, ἀναρροία, from ἀνά, upwards, and ῥέω, to flow. A Flux of Humours, tending from the inferior Parts, upwards. *Castellus* from *Schneider. de Catarrho.*

ANARRHOPIA, ἀναρροπία, from ἀνά, upwards, and ῥέπω, to verge. A Tendency of the Humours to verge or incline upwards, or towards the superior Parts; as καταρροπία is a Tendency of the Humours to the inferior Parts. See CATARRHOPIA.

ANARTHROI, ἀναρθροι. *Hippocrates*, in his Treatise de *Aere, Locis, & Aquis*, says, that a certain People amongst the *Scythians* are ἀναρθροι, to express their being so fat and bloated, that their Joints are obliterated, and not discernible. It is derived from α Negative, and ἄρθρον, a Joint.

ANAS, the Duck, distinguished into the Wild and the Tame. The Tame Duck is thus named:

ANAS, Offic. Bellon. des Oyse. 160. *Anas domestica*, Aldrov. de Ornith. 3. 188. *Jonf. de Avib.* 95. *Schrod.* 5. 314. *Charlt. Exer.* 104. *Anas domestica vulgaris*, Will. Ornith. 293. *Raii Ornith.* 380. *Ejusd. Synop. A.* 150. *Circur, Geln. de Avib.* 83. THE DUCK OR DRAKE.

The whole Duck alive, the Fat, Blood, and Dung are used.

A living Duck, stript Part of it bare of Feathers, and apply'd to the Belly, eases the Pain of the Colic. It is useful in external and internal Pains, as of the Sides, Joints, and in a cold Distemper of the Nerves. The Blood is an Alexipharmic, and therefore sometime used in Antidotes. The Dung is apply'd to the Bites of venomous Creatures, *Schrod. Dale.*

The Flesh of the Tame Duck is not esteem'd very good Aliment for sedentary People, those whose digestive Organs are weak, or for such as confine themselves to a Regimen, either on account of preventing Diseases, or for the Re-establishment of Health, because it is not very easily digested, nor does it afford very good Juices.

The Wild Duck is thus distinguished:

ANAS SYLVESTRIS, Offic. *Schrod.* 5. 314. *Anas torquata minor*, *Raii Synop. A.* 145. *Aldrov. Ornith.* 3. 212. *Anas fesa torquata minor*, *Geln. de Avib.* 99. *Anas fesa*, *Charlt. Exer.* 104. *Mer. Pin.* 180. *Boscas major*, *Jonf. de Avib.* 97. *Will. Ornith.* 284. *Raii Ornith.* 371. THE WILD DUCK AND MALARD. They live in Rivers. The Fat, Blood, and Dung are in use. As for the Virtues, they agree with those of the common Duck. *Dale.*

The Salts of the Wild Duck are much more exalted than those of the Tame Duck, both on account of the habitual Exercise and Aliment of the wild Species, for these live much on Fish and aquatic Insects. The Wild Duck therefore must be a proper Aliment, when an Aciescence prevails in the Stomach and Intestines, or in the Juices; but the contrary, where there is any Tendency to an alkaline Putrefaction.

*Lemery*, in his Treatise on Aliments, makes the following Observations on Ducks.

There are two Sorts of Ducks, the Tame and the Wild Duck; the last of which has brown and reddish Flesh, more valued for the Goodness of its Taste than that of the Tame Duck. Whether you make Choice of the one or the other, you are to pitch upon those that are tender, young, fat, fed with good Food, and bred in a pure and serene Air.

Duck is nourishing enough, and is a Food that is solid and durable. Some Authors think, that the eating of it puts a good Colour into the Face, and makes the Voice pleasant and agreeable.

The Duck, and especially the Tame one, is hard of Digestion, and breeds dull and gross Humours.

The Tame Duck contains much Oil, volatile Salt, and Phlegm; and the Wild ones have more volatile Salt than the other, but less Phlegm.

Both the one and the other agree, in cold Weather, with young hail People, who are used to much Exercise, and have a good Appetite.

#### R E M A R K S.

A Duck is an amphibious Animal; for she lives by Land and Water. The Tame one is not so well tasted, nor so wholesome as the Wild Duck; and the Reason is, because she has not near so much Motion, and consequently abounds with dull, viscous, and gross Humours. Moreover, the Tame Duck lives among Mire, and feeds upon filthy things, such as Mire and Ordure, dead and rotten Fish, Frogs and Toads; whereas the Wild ones live upon Foods which they seek for every-where: They have also a fiercer Transpiration, by reason of the Exercise they have, which helps to attenuate and drive out the gross Humours they may have in them, and, lastly, more and more to exalt the Principles of their Fluids, and for that reason they abound more with volatile Salt, than the Tame ones do.

The Goose and Duck are much like one another in respect to the Substance of their Flesh, and very near produce the same Effect. The Wing of a Duck, as well as that of a Goose, is an excellent Food; and *Alcibiades*, by the following

Lines, shows what were the Parts of a Duck most in Esteem, for the Goodness of their Taste:

*Tota mihi ponatur anas, sed pectore tantum  
Et cervice sapit; cætera redde coquo.*

The Tame Duck raises itself but a little from the Earth, and walks slowly, because she is very heavy; but in lieu of that, she swims very easily, and fast, and can for a long time hold her Head, and the rest of her Body, under Water, either to seek for somewhat to eat, or to conceal herself.

The Liver of a Duck, besides that it hath a very good Relish, is also to be looked upon to be good for stopping the Flowing of the Liver.

The Fat of a Duck is of a mollifying, dissolving, and softening Nature.

They open the Body of a Duck, and apply it warm to the Belly in the Wind Colic.

There are several sorts of Wild Ducks, that differ from one another in Bigness, Form, Cry, and Colour. There are some of them which fly slow, and others very swiftly: However, we may say in general, that Wild Ducks, for the most part, fly faster than Tame ones: They usually live where there are Rivers, Marshes and Lakes.

ANASARCA, ἀνασάρκα, or, as it is sometimes wrote in two Words, ἀνά σάρκα, in the Flesh.

A Species of Dropsy, wherein the Flesh appears puff'd up and swell'd, and yields to the Impression of the Fingers like Dough. See HYDROPS.

ANASPASIS, ἀνάσπασις, from ἀνά, and σπένω, to draw, *Hippocrates*, in his Treatise de *Prisca Medicina*, uses this Word to express the Contraction of the Stomach. He says, *These Stomachs digest much slower, and want a greater Degree of Contraction, ἀνάσπασις*. I suppose he means, that the Stomach wants a greater Degree of Elasticity and Tension; and we know, that when the Fibres of the Stomach are relaxed, Digestion is neither performed so speedily, nor in any respect so well as it ought to be.

ANASSUTOS, ἀνάστυς, from ἀνά for ἀνά, upwards, and σῴω, to move. The Word is, I think, peculiar to *Hippocrates*. He uses it in his second Book de *Morbis Mulierum*, as an Epithet to Air, where speaking of a Suffocation of the Uterus, call'd by the Moderns *Hysterics*, he says, *if the Uteri*, (in the Plural Number) *approaching the Heart, cause a Suffocation, and the Air in Expiration is forced out with Violence, ἀνάστυς* in ὁ αἶς βιάμενος, *the Patients perceive a great Anxiety, and vomit*. In Hysterical Fits we frequently see a Patient labour for Breath, the Air being a long time in entering the Lungs during Inspiration, and immediately after rushing out with great Velocity, so that the Inspiration is not proportion'd to the Expiration with respect to Time; something of this Kind happens in that Action of the Lungs usually call'd *sighing*. Physicians who have seen Women in Hysterical Fits, will readily understand what *Hippocrates* means by this, the Thing itself being the best Explication of the Word.

ANASTALTICA, from ἀνατίλλω, to contract. Styptic, or restraining Medicines.

ANASTASIS, ἀνάστασις, from ἀνίστημι, to cause to rise. In the Classics this Word usually imports a Resurrection, or the Removal of a Camp or People from one Place or Country to another. But *Hippocrates* uses it in two Senses, both somewhat different from these. The first is a Rising up, in order to go to Stool. The second is the Migration of Humours, when expell'd from one Part and oblig'd to remove to another.

It is also sometimes used to express a Rising up on the Recovery from Sickness, or the Recovery itself.

ANASTOICHEIOSIS, ἀναστοιχίωσις, from στοιχίζω, a Principle or Element of which Bodies are composed. *Castellus* explains this very properly by Re-elementation, or a Resolution of the Solids and Fluids of the Body into their first Elements. It is principally used to express a Colliquation of the Solids or Fluids, when in a morbid State, in order for their Expulsion out of the Body.

ANASTOMOSIS, ἀναστόμωσις, from ἀναστόμω, to relax or open the Mouths of the Vessels. This Word imports the opening of the Mouths of the Vessels, in order to discharge their contain'd Fluids. Thus the Menfes, Hemorrhoids, and Blood from the Nose, are said to be discharg'd *per Anastomofin*, that is, by an Aperture, or Opening of the Mouths of the Vessels; whereas, when the Fluids contain'd in the Vessels transude thro' the Sides, the Discharge is said to be *per Diapedesin*; but if the Vessels have been corroded by acrimonious Humours, the Evacuation is said to be *per Diabrosin*, διαβρῶσιν, by Excretion; and if the Contents of a Vessel are let out by a Rupture thereof, it is said to be *per perγμοχασμὸν*, *Celsus*, L. 4. C. 4.

Hence ANASTOMOTICA, are aperitive Remedies, or Medicines which have the Power of opening the Mouths of the Vessels, in the Sense of *Hippocrates*, *Celsus*, and *Cælius Aurelianus*.

But ANASTOMOSIS also implies *Inosculation*. Thus the ANASTOMOSIS of the Arteries and Veins, is their Inosculation, or their Communication together, at their Extremities.

ANATASIS,



ANATASIS, ἀνάτασις, from ἀνατείνω, to extend upwards, or lift up. An Extension of the Body upwards. It is opposed to Catatafis, which is an Extension of the Body downwards. *Galen.*

ANATES, a Disease of the Anus. *Castellus* from *Laurenbergius*.

ANATHLASIS, ἀνάθλασις, from ἀνέ and θλάω, to contuse, or break. *Erotian* explains this by ἐκθλίψις, Expression.

ANATHREPSIS, ἀνάθρεψις, from ἀνατρέφω, to renourish, or reconvey Nourishment to Bodies wasted by Sickness. Renutrition.

ANATHRON, a sort of Salt, which vegetates upon Rocks, in the Form of a white stony Moss. It is a sort of Nitre. *Johnson.*

ANATHYMIASIS, ἀναθυμίασις, from θυμιάω, to fumi-gate. It signifies Evaporation.

ANATICA PROPORATIO, from *Ana*. See A, and ANA. Anatic Proportion, it implies equal Parts.

ANATOME, ἀνάτομή, from ἀνατέμνω, to dissect. Anatomy.

The Sect among the antient Physicians, called *Rationalists*, held it necessary for a Professor of the Art of Medicine, to be acquainted with the interior Parts of the human Body. For since many Pains and Diseases are incident to these inner Regions, how shall a Person, say they, administer Remedies well adapted to those Parts of which he has no Notion? It is necessary therefore to dissect dead Bodies, and to inspect and search into the Viscera and Intestines. *Herophilus* and *Erasistratus* were very much in the right, in receiving Malefactors presented by their Kings, and cutting them up alive, that they might have an Opportunity, while there was yet Breath remaining, of considering those things which Nature had before locked up and concealed, and of examining their Situation, Colour, Figure, Magnitude, Order, Hardness, Softness, Smoothness, and Roughness, their Situation, and their Connections and Communications with each other. For suppose an inward Pain, how shall a Physician know the affected Part, if he be ignorant where any one of the Intestines or Viscera lies? And how can the diseased Part be cured by one who does not know what it is? And when the Viscera happen to be laid open by a Wound, one who never saw the Colour of a sound Part, cannot know the sound from the corrupted, and consequently must be incapable of applying a Remedy to what is corrupted. Besides, the Knowledge of the Figure, Situation, and Magnitude of the interior Parts, renders a Person better qualified for the Application of external Remedies. Nor can it be deemed Cruelty, by the Punishment of Malefactors, and but a few of them neither, to search out Remedies for innocent Persons to all future Ages.

On the contrary, they who called themselves ἐμπειροί, "Empirics," from their experimental Knowledge, maintained, that it was not only unnecessary, like many other things insisted on by the Rationalists, but also great Cruelty, to cut open the Breasts and Bellies of living Men, and to turn that Art which professes the Guardianship of human Health, to the Destruction of Individuals, and that in the most barbarous manner that can be devised; especially when the things which are inquired after by such violent means, are, some of them, impossible to be known at all, and others may be known without such Barbarity. For as to the Colour, Smoothness, Softness, Hardness, and all such-like Qualities, they are quite different in a dissected, from what they were in an entire Body. Even while Bodies remain untouched, these Properties often suffer Alterations, by Fear, Pain, Hunger, Indigestion, Weariness, and a thousand other less violent Affections. How much more probable then is it, that the interior Parts, which have a greater Degree of Softness, and which are Strangers even to the Light, should undergo a Change from such desperate Wounds, and downright Murder? Nor can we do more absurdly than to imagine any thing in a Man to be just the same whilst he is alive, as it is when he is expiring, or even dead. For even the Belly, though it may contain Air, cannot be divided without immediate Death; but as soon as the Knife comes to the Region of the Heart, and the *Septum transversum*, which by a certain Membrane, called by the *Greeks* the *Diaphragm*, separates the upper Parts from the lower, is divided, the Man loses his Life that very Moment, and so the butcherly Physician comes to have a full Prospect of the Heart and its Appearances, with all the Viscera of a dead Man, which can be no other than such as belong to the dead Man, and not such as were belonging to the living Man. So that all the Physician gains, is barbarously to commit Murder, without being the wiser with respect to the State of the Viscera during Life. However, if there be any thing of this Nature that can be the Object of our Sight, while the Breath is in the Body, Chance often subjects the same to our View, when we attend the Sick. Sometimes, for Instance, a Gladiator in the public Shews, a Soldier in a Battle, or a Traveller fallen among Thieves, receive such Wounds as lay open the interior Parts, some one Part, some another, where the sagacious Physician, whose Mind is set on curing his Patients, not on Blood and Slaughter,

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may behold the Situation, Posture, Order, Figure, and the like, and attain the same Knowledge by the way of Pity and Compassion, which others reap from their detestable Cruelty. If these Reasons be considered, even the Mangling of dead Bodies, which if not cruel, is at least filthy, will appear unnecessary; since most things are found in dead Carcasses in a manner different from what they were in the living Body; and all that can be known in living Bodies is evidently shewn in the Cures which are made upon them.

*Celsus* concludes with giving his Opinion as a Moderator in these Words: To dissect the Bodies of living Persons, is both cruel and unnecessary; to anatomize dead Bodies, is necessary for a Learner; for he ought to know the Posture and Order of the Parts, which are better represented in a Carcase than in a wounded living Person. As to the rest, which can only be learnt in living Bodies, Practice will, tho' by a slower, yet in a more merciful way, demonstrate them in the Operations on wounded Persons. *Celsus in Prefat.*

I am sensible there have been modern Physicians, who, ignorant of Anatomy themselves, by a Piece of Policy, not altogether free from Guilt, have represented an Accuracy in this Science as trifling, and of no great Use towards the Cure of Distempers. I believe the following Dissertation will set every reasonable Man right, as to the Uses of Anatomy in Medicine; and certainly every Man of Capacity, and a right Turn, must in proportion be qualify'd to cure Distempers, as he understands the Structure of the internal Parts.

It must however be confess'd, that Anatomical Knowledge has sometimes fallen to the Share of People, who by a Misapplication of it have rendered themselves worse Physicians, than they would have been without it. Such are those of whom *Doctor Freind* speaks, "who, though they have been exact enough in the dissecting Part, yet, without any regard to Nature, or right Philosophy, are for advancing every trifling Discovery into a more trifling Hypothesis." This is, however, no rational Objection to the Art itself, but to an ill Use of it.

I must remark, that in refuting the Arguments against Anatomy, in the first Part of this Dissertation, *Hoffman*, who is the Author of it, had *Stahl* in View, who was a sort of Rival to him, both being Professors in the same University, and both eminent for their great Knowledge in the practical, as well as theoretical Part of Physic. But *Stahl*, it seems, had some extraordinary Notions concerning Nature. See NATURA.

#### *Of the Use of Anatomy in the Practice of Medicine.*

Those who apply themselves to the Study of Politics, are obliged to make themselves acquainted with Geography, a Science, highly necessary for the Illustration and Improvement of that Kind of Knowledge. Of the same Service is Anatomy, or the Knowledge of the human Body, in Medicine; and he who enters himself in the Mysteries of this Art, well furnished with anatomical Knowledge, can scarcely fail of Success in his Practice.

Now, in the Study of Geography, it is not enough to know the Situation and Position of Places, with their Rivers and Mountains, but we ought to have clear Notions of other things, which principally recommend this Branch of Learning. We must be acquainted with the natural Genius of the Inhabitants, their Customs and Manners, in what Arts, or in what Branches of Commerce they principally excel. We ought to know farther in what the Riches of the Country consist, what Plants and Animals are produced in it, what are the Qualities of the Air and Waters; and, in short, what Stones and Minerals the Earth conceals within its Bowels. Whoever observes these things in his Study of Geography, and makes it his Business to attain just Ideas of them, may reasonably expect from thence no small Help and Advancement in his political Studies.

The like Observation may be made with respect to Anatomy, the exact and curious Knowledge of which does not barely include the Situation of one or other of the Viscera, or the Magnitude, Colour, Figure, and Order of the internal Parts, but is of very wide Extent. For it is necessary to inspect, with all our Curiosity, the peculiar Structure of each Part, which is formed with the highest Art and Skill, to find out its Use, what Function it performs in the Body, what Connexion it has with other Members; and to comprehend what Influence it has, after a wonderful manner, on different and remote Parts.

Such a Knowledge of Anatomy is a most firm Foundation, on which the whole Body of Medicine may securely rest; if this be removed, all rational Explinations in medicinal Matters, shake and give way, Practice is in Danger, and even Medicine itself falls all to Ruin. The Use of Anatomy in Surgery is so undoubted, that none but such as are little versed in the medicinal Art, will have the Rashness to deny it. This Part of Medicine, in order to be rightly and successfully exercised, requires a perfect Knowledge of the external Part, for which it is extremely obliged to Anatomy, and, by means thereof, may be carry'd to the highest Perfection. Perhaps it may be doubted by some Physicians, who employ themselves more in exer-



cising than in studying the Art, whether Anatomy promises any Advantages to us in Practice. We must declare, that we are wholly of Opinion, that a solid and skilful Physician is principally obliged to Anatomy for these Qualifications; and therefore can by no means be excused from having them. For the fuller Confirmation of our Assertion, especially in this Age, wherein the Sciences have received so much Light and Improvement, we shall, in the following Dissertation, assert the Usefulness of Anatomy in Practice; in which we shall be a little prolix, that we may the better do Justice to so noble a Subject.

To come immediately to the Matter in hand, we shall first consider the Arguments of those who are of a different Opinion as to the Excellency of Anatomy, and account it of little Use in practical Medicine. These People, that they may confirm their Opinion, constitute in the human Body a *Nature*, by which they mean a Soul. From this Principle they suppose every Motion to flow, as from its first Spring; by this, all Effects produced in the Body, are disposed and regulated, since the Body is an Instrument merely passive, and only qualified to receive those Motions.

This *Nature*, or Soul, according to them, renders the Body sound and vigorous, guards it against Diseases, and expels them when contracted. For since this *Nature* is endued with an exact Knowledge of the Body, it must act in certain Order, Measure, Time, Degree, and Place, and for a certain End, so as to be sufficient, not only for preserving the Body in Health, but for expelling any Disease which may happen to infect it, since the most savage and illiterate Nations, who neither know the Virtues of Herbs, nor are acquainted with any other Remedies against Distempers, will sometimes recover their lost Health by the sole Benefit of Nature. Hence they conclude, that the chief Duty of a Physician is to acquire the Knowledge of the Powers, Ways, and Intentions of *Nature* alone, neglecting the Care of the Body, because it is merely passive. In Confirmation of their Opinion, they add, that Medicine had a Being, and flourished too, in former Times, when Anatomy and natural Philosophy were very little cultivated; and that the Art of Healing, in some who lived in those Times, surpassed the Skill and Address of our Days, though the Physicians of those Ages, being contented with simple Remedies, knew nothing of the medicinal Virtues of Metals and Minerals, nor the artificial Preparations of Remedies. As for Anatomy in particular, in order to depreciate it, they add, that the most complete and accomplish'd Anatomist, who very well understood all the Muscles, and their Texture, would succeed no better in his Attempts to cure them of any Disorder, than one of the most superficial Knowledge in this Part of Medicine. For it is the Soul which puts together the Parts of the Body, and is the Contriver of this wonderful Structure; and if any thing happens to be broken or damaged, the same Power will take care to restore it, and set all things to rights, without the Help of a Physician. Since therefore these things are all at the Disposal of the Soul, Anatomy can be of no Advantage in practical Physic.

Having thus proposed the Arguments which are brought against Anatomy, we are next, according to our Method above declared, to vindicate the Dignity and extensive Usefulness of Anatomy by examining these Reasons, and giving a full Answer to all these Objections. Here first we think ourselves obliged, in few Words, to explain what is meant by *Nature* among the Antients. For our Ancestors, though, on other Accounts, very wise Persons, and highly to be revered, both for their good Parts, and long Experience, yet in rational Medicine, and natural Knowledge, I won't say they were inferior to the Moderns, but that, for want of these Improvements, they took their Measures of the salutary Art, only from Effects and Experiments. Hence it is, that in those Times, the Art of Medicine was taught in a rude and imperfect manner, because the most noble Branches of Learning, that of the Nature and Motion of Bodies, lay in a manner buried; and as for Chymistry, it was wholly unknown; for which Reason, our Indulgence is due to the Simplicity of those Ages for the many unaccountable Stories and idle Dreams they have left us upon Record. They are often talking of several Sorts of active Beings; they considered Matter as passive and inert; and look'd upon the human Body as a mere Instrument. The Soul, or Nature, they supposed to be an incorporeal, wise Being, endued with Reason, and Author and Governor of all the Motions of the Body. Having laid this Foundation, it was necessary, that since the Principle was obscure and unknown, all Science and Demonstration should be extremely precarious. How great Detriment must result from hence to the Art of Medicine, and how great a Hindrance, on the other side, it must be to the Improvement of the practical Part, is manifest from the Lights we have received in this present Age, which shall be further explained. For when neither the Powers nor Effects of corporeal things, which yet act upon us after a wonderful manner, can be explain'd or demonstrated from an unknown Principle, it easily appears in how great Darkness these Times were in-

volved, when they were obliged, for the Solution of Phenomena in Medicine, to have recourse to an unknown *Nature* as their only Refuge. I therefore think we have good Reason to congratulate the present Age, upon account of its being bless'd with a sound and rational System of Philosophy, by which we are taught, that all Bodies, of whatever Kind, are in a State of Action, and that Motion is no more than the Excess or Difference of Action and Force in any two given Bodies; for when two Bodies mutually resist each other, and when the one yields to the other in Consequence of that active Force, originally impress'd upon, and communicated to them by the all-powerful Author of Nature, then and in that Case, Motion is produced; and, *vice versa*, when the Forces of Action happen to prove a precise Balance to each other, then both Bodies remain in a State of Rest; and even those very Motions which are most regularly perform'd, and carried on by the strictest and most uniform Laws of Order, Harmony and Proportion, are no more than the beautiful Result of the various Situations and Combinations of different Bodies mutually acting upon, and resisting each other; for 'tis surprising what considerable Effects may be produced only by the Situation of Bodies: A familiar Illustration of this Point may be drawn from the Action of the Lever; for no incorporeal external Principle, much less a certain *Wisdom of Nature*, whereby she is enabled to produce Motion, is requisite for carrying on the regular and orderly Motions of Bodies; but a certain moving Force is originally impress'd upon these Bodies themselves, which may be either augmented or diminished according to their Situation and Disposition. Since in Productions of human Art, so wonderful and curious Effects flow only from the Action of Bodies upon one another, this must necessarily happen in a greater Degree in the Fabric of the human Body, that incomparable Machine, so delicately form'd, and exquisitely finish'd, by the all-powerful Hand of God; for the human Body must, in Dignity of Structure, excel all Productions of human Art, in the same Degree, that its august and venerable Architect surpasses frail and imperfect Mortals in Grandeur, Power and Skill: Since this Body is a Machine, in the Formation of which, the richest Stores of infinite Art have, if I may be allowed the Expression, been exhausted: Since 'tis a Machine formed by the nicest Art, and in which, almost all the Laws of Mechanics, Statics, Hydraulics, and Optics, take Place, a vast and amazing Variety of every Species of Motion must happen in it. A Physician must, for this Reason, make it his principal Care to understand the Texture of this Machine, and to know the Laws of the several Motions produced in it, whether by the Air, Aliments, or Medicines. When a Physician thoroughly comprehends these things, he can scarcely be ignorant of the genuine Bent and Tendency of Nature, but must plainly see, that she is not only the bountiful Source of Life and Health, but that she likewise governs and directs the Operation of Medicines, and all the several Motions that happen in the Body. When the Word *Nature* is taken in this Acceptation, as indeed it ought to be, then Physic is placed upon a true Foundation, and stands secure upon a Rock that cannot be shaken by the vain Efforts of Imagination and Error. And indeed a Physician who goes thus to work, cannot be ignorant when Nature is well disposed, and when otherwise; but must know in what Life, Health, Diseases, and Death itself consist; nor can the Reasons for a right Method of Cure, and a proper Choice of Medicines, escape him.

If on the other hand, Nature should, as with some of the Antients, be styled *Medicatrix Morborum*, or *The Curer of Diseases*, then nothing more is meant, than the Body itself, adapted with singular Art and Contrivance, for the Production of certain Motions; for by this peculiar Benefit and Assistance of the solid and fluid Parts, of which it is composed, as well as by the Qualities of the Elements and Food, it is enabled expeditiously to perform certain regular and stated Motions, which conduce very much not only to the Preservation of Life, but also the Removal of the Causes of Diseases. For this Reason, that this beautiful and curious Fabric of the Body may be thoroughly known, and its minutest Parts discovered, Anatomy is to be carefully study'd, since it is the only Branch of Learning which can supply us with an accurate Knowledge of its Structure. Besides, the Body can neither subsist, preserve Life, nor escape the Fury of Diseases, unless it be guarded and fortified by external Means, such as Air, Food, and Medicines; and from this Circumstance arises the indispensable Necessity of Physic, which is, as it were, an Assistant to *Nature*, considers and governs her several Motions, discovers what occasions a good, and what a bad State of Health, and takes care, that things of hurtful Qualities be avoided and removed from the Body. And altho' many have been bless'd with a long and prosperous Life without the Assistance of Physicians, yet they never arrived at that happy State without the Assistance of Physic itself, that is, without Remedies, or proper Food, and Regimen. How daring a Piece of Insolence must it then be to affirm, that Nature alone is sufficient for the Cure of Diseases, since in many, both of the acute and chronical Kind, she can



do little or nothing without the Aid of a Physician? It is not therefore sufficient, that the Physician has the Advantage of long Practice, and great Experience; that he knows what things are advantageous, and what are prejudicial; that he knows the Symptoms of a beginning Disease, or the precise Form and Manner in which it quits the Patient; but he must carefully weigh Circumstances and Reasons, and from them form his Judgment of Diseases, foretel their Events, and take rational and prudent Steps for their Cure. If any one follows this Method, he cannot so far miscarry in the Practice of Physic, which is a Work of the highest Importance, as to be of no Use to the Patient; for 'tis abundantly plain, that a Reliance upon Experience alone has too often imposed both on the Physician, and the Patient; wherefore in so great a Concurrence of Causes, 'tis proper to call in Reason and Philosophy to our Assistance, that so the true one may be discovered. Hence arises the Necessity of rational Medicine, which, being founded upon the Principles of Philosophy, must of Consequence be preferable to that which is circumscribed within the scanty Bounds of Practice and Observation. But such a Physic as is supported upon the Principles of Reason and Philosophy, not only deduces and solves the Phenomena occurring in Practice, from sure and uncontested Principles, but likewise greatly assists Practice itself, by suggesting the most salutary Maxims, for discovering a safe and easy Method of Cure. It is not indeed to be denied, that Physic drew her illustrious Origin from Experience; but it must at the same time be owned, that she received her most striking Charms, and all those Degrees of Beauty and Perfection, which at present set her at the Head of all her *Sister Arts*, from Reason and Philosophy. But for acquiring a Knowledge of this rational Medicine, Anatomy is absolutely and indispensably necessary, since without the latter, the former cannot possibly be obtain'd.

It must indeed be confess'd, that Anatomy does not directly and immediately cure the Sick; but yet it has a happy Tendency to make the Cure proceed more safely and agreeably, than it would otherwise do. *Celsus*, in his Preface, very justly observes, that *though there are many things which do not belong to the Arts themselves, yet these very things prove useful to them, by quickening and improving the Genius and Taste of the Artist*. Thus, tho' a Contemplation of the Works of Nature may not form a Physician, yet it renders him better qualified for the Practice of Physic. In like manner, tho' Anatomy does not constitute a Physician, yet it proves at once an Ornament and an Assistance to him, by supplying him with wholesome and salutary Maxims, for the Direction and Regulation of his Practice; for no Branch of Learning is of greater Use and Advantage for discovering Errors in Practice, applying Remedies, and giving just Prognostics, than Anatomy is, as I shall shew more fully in the Course of this Dissertation.

I shall begin with that divine and noble Discovery the Circulation of the Blood; and indeed he must be blind, who does not perceive the Clouds of Darkness that have been dispell'd, and the glorious Light that has been shed upon Physic, by this celestial Discovery; for when, by an accurate Inspection of the human Body, we find that the Blood, and other Humours, are continually carried through numberless small Meanders, by the Vibration and Tone of the solid and muscular Parts; then we come to know wherein Life consists. We shall likewise be convinced of the Excellency of Anatomy, if we allow ourselves to consider, how egregiously the Antients, who neglected the Improvement of this useful Art, blundered in defining Life; for they vainly amused themselves with idle Whims and Conceits in this important Affair, asserting the Cause of Life to be *the Action of the Soul, or Nature, upon the Body; a vital Spirit; a small Flame in the Heart; an innate Heat; the Temperament of the four Humours; and an implanted and influencing Spirit*. These useless and unmeaning Dreams receiv'd a fatal Blow, and fell to the Ground at once, upon the Discovery of the Circulation of the Blood, which, so long as it washes the Body with its perpetual Stream, affords us the Evidence of our Senses for the Existence of Life; for 'tis the bountiful Office of this salutary Motion, to keep the Body safe and free from Corruption, to which 'tis otherwise very much subject. Neither are we to forget, that the Life of the Body is not, properly and strictly speaking, the Duration or Preservation of a compound Substance; for if this was the Case, and if Life was sustained in this manner, a Stone, or a Piece of Bread, might be said to live, so long as its respective Mixture or Composition remained. Life is more properly and accurately defined, a perpetual Action and Motion, by which the Body is principally preserved from Filth and Corruption. For as Putrefaction is no more than an intestine Motion produced in the Fluids by some external Cause, and destroying the Moisture of the Parts, so 'tis plain, that it can only be check'd by their internal, which is promoted by their progressive Motion; and this Motion wonderfully resists the circumambient Atmosphere, and its external Action upon the State and intimate Mixture of the Blood; for the Body is immediately exposed to the Injuries of the Air, as soon as the fluid Particles of the Blood come to be in a

State of Rest. As Medicine in general, so more especially the pathologic and therapeutic Branches of it, have received incredible Advantages from this Discovery; since by it we come to know, that nothing can be more fatal to Life, or more repugnant to Health, than those things which either hinder, or in the least disturb the free and salutary Circulation of the Blood. 'Tis no hard Task to find the Reason, why violent Cold is so prejudicial to the Body, or why Draughts of cold Liquors, drank by Persons over-heated, produce Death. Hence 'tis likewise plain, why polypous Concretions adhering to the Orifices of the Vessels near to the Heart and Lungs, produce sudden and unexpected Death, by intercepting the Course of the Blood. From the Circulation of the Blood, we are also enabled to assign a Reason, why Poisons prove so fatal to the Body; for, in my Opinion, they can scarce produce their Effects in any other way, than by exciting violent Spasms in the Vessels, contracting them, and so hindering the free Course of the Blood through them. We likewise know from this, that all acid and viscid Substances, as also too plentiful Feeding, are destructive of Health, and hurtful to the Body, because, either by inspissating or augmenting the Juices, they hinder their free Circulation, and produce immediate Loss of Health. As this is the Case, we may easily, from the Doctrine of the Blood's Circulation, deduce the most wholesome and salutary Rules for the Preservation of Health and Life; for every one who is fond of a long and happy Life, must by the Benefit of this Discovery perceive, that it is his chief and principal Interest to preserve the Circulation of his Blood uninterrupted, safe, and entire. Hence he must see the Necessity of abstaining both from such things as coagulate his Blood, and from such as, by augmenting its Quantity beyond a proper Degree, render it less fit for making its way through the several Vessels of his Body. He ought, on the other hand, to use all such things as have a Tendency to preserve his vital Juices in a due State of Fluidity, such as volatile Salts, Aromatics, and warm Infusions of balsamic Herbs, by means of which, the due Motion of the Blood is most effectually preserved. From this Discovery we must likewise perceive, that in case of too great an Affluence of Blood, its Quantity must be diminished; and that, in such Cases, Bleeding must not only be proper, but even prove the sole and only Preservative of Life.

Besides, Anatomy furnishes us with abundance of Reasons, why Death, in Spite of all the Medicines in the World, must prove the Fate of every Individual; for Life, which is no more than the perpetual Motion of the Fluids, not only depends upon their due Temperament, but also, and that more especially, upon a certain Motion of the solid Parts. Now when old Age begins to approach, the moving Fibres gradually become hard, thick, and immoveable, the Pores are shut up, and the Vessels are too full. Hence the Fibres, not being sufficiently animated by the subtle nervous Fluid, become stiff, inflexible, and unfit for protruding the Blood thro' the Body. Besides, when the cutaneous Pores are obstructed, the several Excretions must of course be retarded, and recrementitious Filth must be accumulated in the Body; the Consequence of which is, first, a bad Habit of Body, and, not long after, inevitable Death. If we reflect with a little Attention upon this Circumstance, the most effectual Means of obtaining a long Life cannot fail to suggest themselves to us, and convince us, that we ought to place our principal Care in preserving our several Juices in a due State of Fluidity, lest, thro' a Defect in that Point, the Pores should be block'd up, and the Fibres become gross and rigid. For preventing this, Motion and Exercise are very proper, since they are exquisitely calculated for preserving our Fluids in their due State. A pure and serene Air, thin and light Water, good small Wine, Food which contains little of an earthy and compact Substance, and which is light, and of easy Digestion, and Composure of Mind, contribute also to this End. When these Things are diligently attended to, and Health regulated by these Measures, Life must be preserved the longest that the Condition of our Natures will admit of. Nor is frequent Phlebotomy to be neglected, the Usefulness of which, for prolonging Life, is sufficiently shewn by the Discovery of the Blood's Circulation; for 'tis plain, that by this means Blood, which by reason of its Abundance, is become thick and slow in its Motion, must be restored to its due and regular Course thro' the Body: Neither have we any Reason to be afraid of exhausting this rich Fountain of Life, since, as *Galen* has observed, the Antients took whole Pounds, instead of Ounces, as the Moderns do.

By the Help of Anatomy we likewise become acquainted with the formal Cause of Death, which, in whatever Shape it deprives a Man of Life, may be distributed into four Classes; for there must be either an Inflammation of the more noble Parts, such as the Meninges, Lungs, Stomach, and Intestines; or extravasated Blood or Serum, as usually happens in the Brain, Thorax, and Abdomen; or some of the Viscera must be corrupted; or a Polypus must be formed among the Vessels of the Heart or Lungs, obstructing the free Circulation of the Blood. I say, where-ever Death happens, it must be owing to one or other of these Causes,



Causes, as is plain from all Dissections. And, indeed, an Inflammation is the Cause of Death in acute Disorders; and a Corruption of the Viscera, or an Extravasation of Blood or Serum, produces the same Effect in chronical Cases: But a Polypus is generally found to be, of all others, the most speedy Cause of Death. These several Causes of Death plainly shew, that it is nothing more than a Destruction of the Circulation of the Blood. From the joint Consideration of these Circumstances, it follows, that he who intends to ward off Death, must be at due Pains to prevent Inflammations of the internal Parts of his Body, Weaknesses or Obstructions of his Viscera, and Extravasations of his Blood and other Juices.

This same Discovery, I mean that of the Circulation of the Blood, which is, without Doubt, the surest Prop, and the noblest Ground-work of all Medicine, clearly accounts for the Causes of Health, and sufficiently shews, that it can only be expected from a free and due Circulation of the Blood and Humours, and the several Excretions being carried on with Regularity: For when the Blood is carried thro' the Body in a calm, regular, and uniform Manner, then the several Elements of which it consists, are not only duly mixed with each other, but every thing that is of a recrementitious Nature, every thing that offends either in Quantity or Quality, is by that means evacuated, and drawn out of the Body. Thus all the animal Functions are performed, according to the Order and stated Laws of Nature; thus Health, and thus the Vigour of Health, are preserved: Those must therefore err, who maintain, that Life consists in the Excretions being duly made; because Life, even when the Excretions are entirely out of the Account, may cease; and Experience proves, that many die at the very time their Excretions are performed. We therefore, with better Reason, affirm that Health depends upon the Circulation of the Blood, which, when duly carried thro' the Body, renders the several Excretions regular and natural; whereas, when its Motion is too languid, or impair'd by any Disease, the Excretions are interrupted; nor, indeed, can there be any Disease in which the Excretions do not suffer. We even often see Patients die, rather from the Excretions being too copious, than from their being deficient; as may be observed in acute Disorders, hectic Cases, Dysenteries, and other Diseases of a like Nature. That Physician, therefore, acts a Part entirely consistent with the Dignity of his Character, who, in the Cure of Distempers, has a Regard not only to the Circulation of the Blood, but also to the several Excretions, especially that of Transpiration.

Since our Fluids pass thro' the Body very often every Day, and since indulgent Nature has every-where bountifully provided proper Emunctories for the Excretion of the recrementitious Matter, we must take care, that these Emunctories be always kept open; for by this means the Blood is rendered limpid, pure, and balsamic; and all such things as are capable of laying a Foundation for Diseases, are eliminated out of the Body. Among the several Emunctories, which are evidently to be found in the Body, those of the Skin, by which, as *Celsus* says, Transpiration is carried on, as it were, thro' so many invisible little Holes, are the most considerable; for what friendly Office Transpiration performs to the Body, and how much it contributes to the Preservation of Health, may be conceived from this Circumstance; that more recrementitious Matter, and that too of a more virulent Quality, is discharged from the Body in this way, than by all the other Excretions together. Hence 'tis plain, that nothing can have a more direct and immediate Tendency to bring on Diseases, than a Suppression of the several Excretions, especially that by which the Filth and Sordes of the Body are carried off by Transpiration. As this is the Case, the Practice of that Physician must be rational, who, when he is perfectly acquainted with the Origin of the Disorder, restores the usual Excretions, opens the obstructed Emunctories, and disposes them to afford a free and easy Passage to the malignant and virulent Sordes: But this is most effectually brought about by means of a pretty quick and accelerated Motion in the Fluids; which, when it happens in acute Disorders, and especially in Fevers, sufficiently accounts for the Patient's recovering Health only by the Benefit of Nature, without any great Trouble to the Physician: For this intense Motion expels the Cause of the Disease, opens the Emunctories, attenuates the Humours, and soon restores perfect Health. The Reverse of this happens in Diseases of the chronical Kind, and of long Continuance, where the Motions, being sluggishly carried on, are to be accelerated by Art, and the Weakness of Nature is by that means to be assisted. In Disorders therefore of this Kind, Sudorifics, Chalybeats, Bitters, Salts, Purgatives, warm Baths, and mineral Waters, are of singular Advantage; and the Virtues of these Remedies, in Cases of this Nature, are to be accounted for only from this, That by their quick and accelerated Motion they remove the Obstructions of the Body, and, by restoring the several Excretions, reduce the Fluids to a natural and orderly State. The same Reason may be assigned, why Motion and Exercise, the Drinking of wholesome mineral Waters, and the Clemency of the Air and Climate, have so

happy an Influence upon chronical Disorders, and prove so effectual in carrying them off.

But since the Antients were ignorant of the Blood's Circulation, we need not be much surpris'd, that they fell into various Errors in Practice; but, to pass over others of their Blunders, 'tis well known how careful, or, to speak more properly, how whimsical and superstitious they were in opening certain Veins, being groundlessly persuaded, that this or that particular Vein was appropriated or consecrated to this or that particular Part; the Head, for Instance, the Heart, or the Liver; and that, in the Diseases of those Parts, it was necessary to open their respective Veins. In Process of Time, when Anatomy began to be improved, these wild Chimeras were entirely banished; for we have learned, that there are two Uses in Bleeding, that is, Evacuation and Derivation; the former of which is serviceable in case of too great a Quantity of Blood, and 'tis no great Matter which Vein be opened: But, in order to make a Derivation, we are taught to open a Vein in the upper or lower Parts of the Body, as the Nature and Circumstances of the Disorder shall require.

From Anatomy 'tis also plain, that the four Humours, and their Intemperies, were, by the Antients, falsely proposed as the Causes of Diseases; for these very Humours appear no-where in the Body, so that their Theory must, of course, fall to the Ground, since it was built upon a Foundation so precarious and uncertain: Hence it happened, that the principal Part of their Medicines consisted generally of strong Purges, whilst they supposed, that Purgatives had an *elative Quality*, and idly imagined, that one was proper for purging Bile, another Melancholy, and another Phlegm. And although I willingly allow, that one of these Medicines may be preferable to another, and better calculated for breaking the Force, and removing the Cause of certain Distempers, yet I cannot approve of their Opinion, since it is entirely inconsistent with the Circulation of the Blood, from which alone the Causes both of Life and Diseases are derived: For whatever Purges act strongly and violently, must throw out whatever kinds of Humours are lodged in the Body, whether they be viscid or bilious; and, for this very Reason, the Antients were faulty in their Practice, since they made so frequent Use of the strongest Purgatives: For in the Days of *Galen*, and more especially in those of *Hippocrates*, the more gentle Laxatives had no Place in Practice, but the Patients were racked with Hellebore, Colocynth, Scammony, Elaterium, and other Purgatives of a like Stamp. Yet Experience has taught us, that these Medicines are so far from being beneficial, that they are very noxious and hurtful to our Constitutions; for they destroy the Tone, and impair the Strength of the Intestines, which are so necessary for the Preservation of Life; they diminish the Force and Strength of the Membranes by spasmodic Constrictions, exhaust and carry off the balsamic Bile, and disturb the salutary Excretions, by drawing that Humour which should be discharged through the Skin, from the Circumference to the Centre of the Body. Nor can any other Cause be assigned for this Error in Practice, than their Ignorance of Anatomy, which, as soon as she rear'd her Head above those Clouds of Darkness, with which she had, till then, been incircled, detected these Errors, and instructed us to beware of them for the future.

Besides, their immense Number of Medicines sufficiently proves, that their Practice was confused, and their Industry, in some Degree, superfluous; for what is the Design of so many Cordials, Hepatics, Splenetics, Uterines, Antiepileptics, Anthelmintics, and Remedies appropriated to each Part of the Body? What can be the End of such a Multitude of Remedies, but to convince us, that the Physician, amidst such a Store of various Medicines, knew only the Virtues and Qualities of a few? For Diseases are cured with a few, but well-chosen Medicines, which the Antients being ignorant of, contrived such a cumbersome *Materia Medica*, under so many trifling and inconsistent Forms. It was likewise their Misfortune, that the richer and more noble Medicines were not known in their Days, such as volatile Salts, neutral Salts, the right Use of Anodynes; as also the several Preparations of Steel, Antimony, and Mercury. As it was their Misfortune to be ignorant of these Things, they must of consequence be very ill qualified for the Cure of chronical Disorders; or if they attempted a Cure in Cases of this Nature, it was done by Regimen, Abstinence, Phlebotomy, Frictions, Baths, Exercise, Change of Air, and their last Resource was the Knife, and Fire. The very Nature of the Climate, in which some of the ancient Physicians lived, was also a Circumstance which very much contributed to the Cure of some Diseases; for in those warm Countries, such as *Greece* and *Italy*, Diseases are not very deeply rooted, and are therefore cured with little Pains and Trouble: But in acute Disorders, as Nature always challenges a greater Share of the Cure than Art, so 'tis not to be doubted but, among the Antients, these short-lived Disorders have been removed by the Force of Nature, aided by the Temperature of the Climate, and the Clemency of the Air. Now that we stand in need of fewer Medicines, and are Masters



of a Method of Cure which is safe, easy, and simple in Comparison of theirs, is, in my Opinion, owing to our Knowledge of Anatomy; for since 'tis the principal Business of every Physician to take care, that the Quantity, Temperament, and Mixture of the several Humours, be duly proportioned to the Vessels and Strength of the Patient; and that these Humours be kept continually circulating, whilst, at the same time, the Excretions are regularly made; since this is the whole Business of a Physician, every one must see, how few Medicines are requisite to answer these several Ends.

Having thus considered, how useful a Knowledge of the Blood's Circulation is in Practice, I now come to take a View of the Advantages accruing to it, from our Acquaintance with the Structure of some other Parts. The first I shall mention, is that common Covering of the Body, the Skin, the Texture of which if we understand, by means of Anatomy, we shall not only shun the Errors commonly received with regard to it, but likewise be greatly assisted in the Cure of Diseases: In the Skin various Vessels, Tendons, and Nerves terminate, with which some small Glands, or small villose Bodies, are interwove, that the thick Serum, and the salt, agile, and aerial Principle, may be the more commodiously secreted. If a practical Physician rightly understands this Structure of the Skin, which is only fit for the Excretion of very small Particles, he must be convinced, that the Pores of the Skin, destined for a Discharge of the finest Particles, must be very ill-adapted to carry off the viscid and bilious Sordes collected in the *Primæ Viæ*. Whenever, therefore, the Stomach and Intestines are become turgid with Humours of this Kind, as it usually happens in intermittent Fevers, Quartans, hysteric and hypochondriac Disorders, the Physician is carefully to avoid prescribing all hot Medicines, and the stronger Sudorifics; for these, instead of procuring Stools, which indeed ought to be done, rather make the Patient costive, by driving the Load of recrementitious Matter from the Centre to the Circumference of the Body, and mixing it with the Mass of Blood. This Practice is likewise to be shunn'd, when the Bile, in consequence of a sudden Sally of Passion, has quitted its proper Channels, and lodged itself in the Stomach and Intestines; for if, being put into a Commotion by warm Medicines, it should pass into the Blood, it resembles the Nature of Poison, produces the same deleterious Effects, and threatens the Patient with imminent Danger: In such a Case, therefore, the Physician must, if he pretends to act up to the Principles of his Art, take care to evacuate that Load of Humours lodged in the Stomach and Intestines, by the proper Emunctories, and with the Assistance of gentle Laxatives.

By this same Anatomical Observation we are taught, that this Method of Evacuation is less proper when saline, caustic, and subtil Sordes are mixed with the Blood; for these should have a way made for them thro' the Skin; the Pores are therefore, in such a Case, to be kept open by a due Degree of Heat, and proper Medicines: And this is to be carefully attended to, in all Diseases where Sordes of this Kind are offensive, as Erysipelas, Itch, Purple Fever, Petechial Fever, Small-pox, Measles, and Gout, especially if the Pustules are struck back into the Body. All these Things plainly shew a Physician, who ought to be the Assistant of Nature, that nothing can better qualify him for being so, than a Knowledge of Anatomy; but because the Skin is, upon account of the Nerves and Tendons which terminate in it, of a very quick and exquisite Sensation, and consequently very easily constricted, a Physician ought to guard against all those things which contract the Pores, and prevent a free and wholesome Transpiration. This is principally to be regarded in Diseases where the Blood abounds with impure and saltish Recrements; and all possible Care is to be taken, that the sharp and noxious Matter, which should be discharged thro' the Skin, be not imprudently struck back into the Body, and Mass of Blood: For this Reason we are to avoid cold and moist Applications, Ointments, Plaisters, and whatever may contract the Skin; but this Caution is particularly necessary in pustular Disorders, such as Itches, Gout, scald Heads, Leproties, Erysipelas; and also in critical Sweats, lest by the rash Use of these things we precipitate the Fate of the Patient.

Next to the Skin the Fat presents itself, from an accurate Contemplation of which, the practical Physician must likewise receive Advantages, that will more than counterbalance his Toil in the Research; for as this Substance is laid thicker upon some Parts of the Body than others, so, by this very Circumstance, it points out to us the true Method of applying external Remedies, or, as we commonly call them, Topics. Thus, for Instance, the Person who applies external Medicines to his Hip or Thigh, in order to remove the Agonies of Sciatic Pains, will find his Expedient attended with very little Success; because the Abundance of the Fat, and the Thickness of the Muscles, prevent, in a great measure, the Medicines from reaching the Part affected. Nor will he act more rationally, who, in order to cure the Disorders of his Stomach, applies Plaisters to his Sternum or Abdomen; because, in these Parts, such Remedies produce very little Effect on account of the Fat, with which the Abdomen is covered. (It is necessary to remark here, that the

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Hoffman may be right in the general upon this Subject, yet, with respect to Applications to the Hips, Abdomen and Stomach, Experience manifestly contradicts him, since there are Topics which exert considerable Effects when applied to those Parts. Our Author here, in defending Theory, which may be rendered extremely useful, has given us an Instance of its Misapplication, thro' the Rashness and Self-sufficiency of human Wisdom. In Philosophy, as well as Divinity, we are subject to arrogate to ourselves supreme Knowledge, and, in consequence of that, rashly to deny the Existence of Things and Effects, unless we can comprehend them, and conceive in what manner they are brought about; whereas Nature, or its all-powerful Author, has ways of acting to which we are, at present, Strangers, and Resources with which we are utterly unacquainted.) We therefore learn from the Principles of Anatomy, that in applying Topics, such Parts of the Body must be chosen as are covered with the slenderest Muscles, and the smallest Quantity of Fat. For this Reason, the nervous and tendinous Parts are, of all others, the most proper; such as the Soles of the Feet, the Palms and Wrists of the Hands, the Temples, and the Nape of the Neck. Medicines of this Kind may be also applied, with Advantage, under the Arm-pits, and to the Hollows of the Hams; from which Parts their Virtues are sensibly diffused thro' all the Body. When therefore, in case of too great a Heat and Fervor, the Body is to be cooled, it is proper to apply, to the above-mentioned Parts, Liquors that are somewhat acid, and gently repressing; for, by the Use of these, the Body is surprisingly refreshed. The same Practice is to be followed in allaying Spasms in Fevers, in which Case also corroborative and subastringent Plaisters may, with Success, be applied to the Nape of the Neck, the Temples, and the Wrists: But when the nervous System is to be strengthened, 'tis proper, now-and-then, to warm and cherish the Nape of the Neck, and the Sutures of the Head, with mild and balsamic Corroboratives. When the Force of the languid and unactive Nerves is to be excited, or a viscid Humour to be dislodged from some particular Part, the Intention is best answered by Vesicatories, applied to the Nape of the Neck. Lastly, in a *Lues Venerea*, or an Itch, which Disorders are often happily carried off by a seasonable Salivation, it is most safely raised by applying mercurial Ointments to the Arm-pits.

An accurate Knowledge of the Structure of the Navel will also qualify a Physician for the Application of Topics, with equal Prudence and Success; for 'tis known, that the *Linea Alba* is contiguous to the Navel, which, of itself, is a Part most sensible of Impressions: In this *Linea Alba* many considerable Tendons centre; so that 'tis plain, that Part must be endowed with a very quick and exquisite Sense, and therefore have a Consent with the whole Body; for 'tis very remarkable, that all the nervous Parts of the Body, if strongly irritated, or otherwise affected, do at the same time put the whole Body into a Commotion, by reason of the mutual and uninterrupted Connection of the Nerves dispersed up and down it: For this Reason we are not to wonder, if Medicines applied to the Navel do not confine their Efficacy to that particular Part, but convey it to the most distant and remote Quarters of the Body, by means of the many considerable Nerves which run thro' the Navel. Thus 'tis known, from a celebrated Family Experiment, that the Quantity of a Nut, of fresh Butter, applied to the Navels of Children, procures them Stools: And if Worms are lodged in the Intestines, if the Navel is anointed with Bull's-pall interspersed with the Ointment of Sow-bread, and mixed with Oil of Colocynth, it stimulates the Intestines to expel the Worms. In the convulsive Colic, which is indeed a very terrible Disorder, the Agonies of Pain are surprisingly allay'd by anointing the Navel with a few Grains of Civet. Nor is less Relief to be expected in a Suppression of Urine, from carefully anointing the Navel with Oil of Turpentine; for the Discharge of the Urine will be wonderfully promoted by that means, since the Umbilical Arteries adhere to the Sides of the Bladder.

The Diseases of the internal Parts, and the most proper Methods of curing them, must be made known to us by considering their Situations, and the several Parts where they are placed: Thus we know, that the Stomach is inclined to the Left Side, and that its upper Orifice adheres to the *Spina Dorsi*, whereas its inferior Orifice is covered with the *Scrobiculum Cordis*. From this Circumstance it is very plain, that the most intense Pain, which has erroneously got its Denomination from the Heart, proceeds entirely from the Stomach; and that the Seat of a *Cardialgia*, as is groundlessly thought, is not in the Left, but rather in the Right Side of the Stomach: For leaving the Seat of the Pain, which is under the *Scrobiculum Cordis*, entirely out of the Question, this appears plainly from this Circumstance, that the Bile, which frequently excites the Pain, lies nearer to the Right than to the Left Orifice: Hence those, who labour under Obstructions of the Liver, are most frequently troubled with this Disorder. Now when the Pain itself has reached the very Back, the Left Mouth or Orifice must also inevitably suffer: Anatomy therefore teaches us, that, in this Case, Plaisters, spirituous Substances, Balsamics, and such things as are calculated for strengthening the Stomach, and allaying Pain, are to be

externally



externally applied to the *Scrobiculum Cordis*, and the Left Side under the false Ribs. From Anatomy we also learn, that this Disorder is most effectually relieved by such Medicines as correct the Acrimony of the Humours, and discuss Flatulencies. Besides, because the Stomach, as Anatomy teaches us, lies under the Diaphragm, it often happens, that its being inflated produces the greatest Uneasiness, and Difficulty of breathing; in which Case, the Physician, who is ignorant of Anatomy, would commit an egregious Blunder, if he prescribed sweet and emollient Pectorals, imagining the Cause of the Disorder to reside in the Lungs; whereas the Cause itself, which is a thick Phlegm, and an Inflation, ought rather to be taken away, and the Spasms of the Stomach should be removed; both which are often happily effected by gentle Emetics and Laxatives.

The Situation of the Colon, and its sinuous Structure, of which the Antients were ignorant, by reason of their Neglect of Anatomy, has so deceived them, and even some of the Moderns, that they ascribed to a Fault of the Spleen, those Tumours, especially of the Left Side, which, in Hypochondriacal Cases, proceed from a Flatus, and Ordure pent up in the Foldings of the Colon. If these Men had learn'd, that the Spleen lay under the Diaphragm, and that it was nearer to the Spine, they might have easily shunn'd so palpable an Error. For 'tis well known, that the Pains, the parching Heats, and the Tumours, under the false Ribs of Hypochondriac Persons, appear principally in the Left Side. Add to this, that the Spleen has a less exquisite Sensation; and by reason of its Bulk, the Circumstance which generally renders it troublesome, excites a very heavy and fixed Pain, whereas in Hypochondriac Disorders we observe, that the Pain is intense, but soon goes off. As this is the Case, 'tis plain, that in the Cure of that Disease, carminative Clysters, which dilute the Acrimony of the Humours, and defend the nervous Membranes of the Colon, are deservedly preferable to all others. In this Case Carminative Plaisters are not to be neglected, which, when apply'd to the Left Side, strengthen the Tone of the Colon, and afford surprising Relief.

Another Disorder, which draws its Origin also from the Colon, sometimes perplexes the Physician who is ignorant of Anatomy; for it sometimes happens, that a violent Pain suddenly arises near the Colla of the Right Ilium, accompanied with an obstinate Constipation of the Belly. The Cause of this Disorder is this: The Beginning of the Colon is situated there, and consists of very strong Ligaments and Membranes, that so it may the more speedily protrude the Fæces upwards. But when, in Persons that are reduc'd by the Violence of some Disease, the Tone and Strength of this Intestine are impair'd, Flatulencies and Fæces retain'd in it distend it, resemble a Tumour, and subject the Patient to the most excruciating Agonies. The Cause then of this Disorder plainly demonstrates, that in this Case the only things which can afford Relief are Cataplasms of Carminative Seeds and Herbs; and that 'tis likewise very proper to wash the Intestines with oily Clysters; for when these arrive at the Beginning of the Colon, they powerfully soften the indurated Fæces, and by that means forward their Expulsion.

Violent Pains often arise about the Navel, which, being really in the Ilium, are, by some Physicians, who are ignorant of Anatomy, erroneously taken for Colics. This Disorder is certainly very frequent, but it was still more so in the Days of *Hippocrates*, who often makes mention of it, but never of a Colic; which seems to be owing to this, that on account of the Salubrity of the *Grecian* Climate, Colics, as well as Hypochondriac Disorders, were not frequent. 'Tis therefore highly proper, that in the Cure of this Disease we should know the Situation of the Intestines, lest we should otherwise apply Medicines to no Purpose. For tho' in Colics Clysters are very proper, yet 'tis very plain they do little Service in the Iliac Passion, since they never reach beyond the Valve of the Colon. 'Tis therefore in vain to have recourse to Clysters for the Cure of this Disease; we are rather to use Plaisters and Ointments externally, and internally Oil of sweet Almonds, mixt with Oil of Anise.

In this Case also nervous Medicines, and Preparations of Castor, are very properly used, because they wonderfully mitigate the Violence of the Spasms. (*See ILLIACA PASSIO, where the Reasons will be given why emollient Clysters are useful in this Case, tho' they should not pass the Valve of the Colon*).

He who is acquainted with the Situation of the Intestinum Rectum, and its close Connection with the Bladder, must perceive the Reason why a Difficulty in making Water, especially if it proceeds from a Wound, or the Stone, is always accompanied with a Tenesmus, and very often with a Prolapsus Ani. The Physician who knows the Situation of this Intestine, will also be able to assign a Reason, why, in a Tenesmus, the Bladder is reciprocally stimulated to discharge its Contents. In such a Case therefore 'tis carefully to be inquir'd into, whether the Fault lies in the Bladder, or in the Intestinum Rectum, lest whilst the Cause is unknown, the Cure should miscarry; for Remedies would be very improperly apply'd to the Bladder, if the Intestinum Rectum should happen to be the Seat of the Disorder.

It is equally necessary to consider the Situation of the Bladder which is placed in the very Bosom or upper Part of the Pelvis, and is join'd to the *Os Pubis*. A numerous and manifest Series of fleshy Fibres run along it, by the Contraction of which the Urine is discharg'd, and which being again distended by too great a Quantity of Liquor in the Bladder, their Elasticity is proportionably destroy'd, and the Urine suppressed. Hence we learn, that for relieving this Disorder, we must apply to the Region of the Pubis such Medicines as stimulate the Fibres to a Contraction, that so the Efflux of the Urine may be restored. For answering this Intention, some Oils are very proper, such as Oil of Scorpions, and Juniper, Garlick also, roasted Onions, and other Medicines, which have a Tendency to raise and strengthen the weakened Tone of the Bladder.

The Course of the Ureters is towards the Bladder, and passing in an oblique Direction over the Psoas Muscles, are inserted into its posterior Part. These, I mean the Ureters, consisting of muscular and tendinous Fibres, must necessarily be violently irritated by Stones falling down into them, and remaining there. That the Physician may also receive Advantage from this Anatomical Observation, it will not be amiss to inform him, that in this Case he is carefully to avoid prescribing Oils of Juniper and Turpentine, Balsam of Sulphur, and all Medicines that are of a forcing Nature, because in this Disorder 'tis his Business to relax the Parts contracted by the Violence of the Spasms; for which Reason he will, with more Advantage, have recourse to the express'd Oils, such as Oil of sweet Almonds, Nutmegs; Oil of white Lillies, Scorpions, Poppy-seeds, Caraway, and others; for these, when apply'd to the Region of the Loins and Ureters, surprisingly assuage the Pains produced by this Cause.

The like Advantages in curing Diseases flow from considering that exquisite Congeries of Nerves, that Variety of Arteries, Veins and Tendons, which are interwove with the Mesentery about the last Vertebra of the Back, and first of the Loins; for hence we may reasonably conjecture, that the intense Pain which seizes People in the Beginning of Intermittent Fevers, in the Small-Pox, in the Measles, in the Hysteric Passion also, and other acute Disorders, does not arise from a Stone in the Kidneys, as is generally thought, but from the Congeries of Nerves in the Mesentery: For if these be distended or vellicated by Flatulencies, or Blood stagnating in the Intestines, there immediately arises a Pain in the *Spina Dorsi*. I once knew a Physician very successful in curing this Disease, who for that Purpose very often used Plaister of Frog's-spawn, with Oil of Henbane and Camphire. On the other hand, narcotic astringent Remedies, and Lead-plaisters, instead of affording Relief, rather hasten the Destruction of the Patient. I have also often observed, that such Applications, when used with a View to check the menstrual Discharge, not only restrain'd, but entirely stopp'd it, to the great Prejudice of the Patient, the Blood being by these Means forc'd upon other Parts.

I now come to take a Survey of the genuine Structure of the Viscera, that we may thence see how useful the Knowledge of Anatomy is in the Practice of Physic. To begin therefore with the Lungs, 'tis sufficiently evident, that since they are composed of mere Vessels, they must abound with Blood; for innumerable Branches of Vessels, winding in a great many various Directions, pass thro' them, and thro' the Whole of their Course embrace the *Bronchia*. The Pulmonary Artery also, by which the Blood is convey'd from the Right Ventricle of the Heart into the Lungs, appears to be larger than the Aorta itself. Besides, the Pulmonary Vein sends so many wonderful and curious Branches thro' them, that if melted Wax is injected into these Branches, a very considerable Number of them may be seen. This may furnish us with an Argument, that the Diseases of the Lungs proceed principally from a Stagnation of the Blood, and a Prevention of its free Circulation thro' them. This is confirmed by a Spitting of Blood, a Peripneumony, a Pleurisy, a Phthisis, and all the fatal Train of Diseases which prey upon the Lungs.

If we allow these Considerations their due Weight, we must evidently see, that in Disorders of the Lungs Phlebotomy not only affords Relief, but is absolutely necessary, both for the Cure and Preservation of the Patient. Hence we see with how great Propriety all those Medicines are prescribed in Diseases of the Lungs, which dissolve and attenuate the Blood lodg'd in them. The best and most effectual Remedies of this Class are warm Infusions of Herbs that are balsamic, and contain a subtile nitrous Salt. 'Tis hence also plain to a Demonstration, that in Disorders of the Lungs nothing can be more hurtful and pernicious, than astringent Acids, Styptics, viscid Substances, and all such Medicines as retard the free Course and Circulation of the Blood; and because the *Aspera Arteria* enters the Lungs, and is itself lin'd with a nervous Membrane, all acid and sharp Substances are therefore to be avoided, as hurtful in Disorders of the Breast; for these not only draw too great a Quantity of Blood to the Part affected, which is already too full, but, which is still worse, stop the Motion and Circulation of the Blood.



It now remains, that we take a View of the Structure of the Liver, which, of all the Viscera, abounds most with Blood, and presents us with various Vessels, the precise Number of which 'tis no easy Task to determine: Even the very Glands which are found in the Liver, are no more than the numberless Branches of Vessels, which, arising from the *Vena Portæ* and *Vena Cava*, form themselves into membranous Cells of an oval Figure, as has been ingeniously observ'd by *Vieussens*, in his Treatise *De novo Vasorum Systemate*; for the Glands of the Liver secrete the Bile, which is collected together from various little Vessels interwoven with, and adhering to one another.

Now if we consider, that the Liver is furnish'd with the greatest Part of its Blood from the Spleen, the Omentum, the Stomach, the Intestines, and other Contents of the Abdomen, by means of the *Vena Portæ*, and that this Vein is destitute of a Pulse to propel its Contents forwards, we shall be at no Loss to conceive why the Liver should be very obnoxious to Stagnations of the Blood, and all the dismal Train of Consequences that follow it; for Obstructions of the Vessels, Infarctions, Indurations, and most chronical Disorders, are the Results of a weak and languid Circulation of the Blood thro' the Liver; for if a Passage is deny'd the Blood thro' the *Vena Portæ*, and the *Vena Cava*, it returns to the Viscera whence it came, and is deriv'd to the Spleen, the Pancreas, the Mesentery, and other Parts. By this means it happens, that, so long as it lodges there, it distends the Vessels, and by stimulating the nervous Membranes occasions various Spasmodic Disorders, and Obstructions. Upon this Occasion the Lymph is extravasated, and hence arise Tumours, Piles, Vomitings of Blood, the *Morbus Niger* mentioned by *Hippocrates*, and a numerous Train of such-like Disorders: That these may be expell'd from the Body, the prudent Physician informs himself from Anatomy, that the chief Intention of Cure consists in rendering the Motion of the Blood thro' the Liver free and easy. In Cases of this Nature therefore, Mineral Waters, warm Baths, wholesome Waters liberally drank, all Bitters likewise, saline Substances, fix'd neutral Salts, and in a Word all such things as attenuate the Blood, strengthen the Solids, and restore the Blood, to its usual Circulation, are of Service. And when the Blood accumulated in too great Abundance, which is often the Case, proves hurtful, we may easily imagine, that Phlebotomy must be proper and beneficial, because by means of it the too great Quantity of Blood which distress'd the Patient, by distending his Vessels, and breeding Obstructions, is happily diminished.

Besides, by Anatomy we discover, that the Liver adheres to the Diaphragm, which particular Structure, like all the other Works of the supreme Creator, was design'd to answer a noble and important End, which is, that by the frequent Motion of the Diaphragm in Respiration, the Liver, which adheres to it, might be agitated and put into Motion; and by that means the languid Motion of the Blood quickened and accelerated; which is a sure Proof, that in Diseases of this Kind, Motion is a proper Remedy, and that for this Reason, Exercise, Walking, Riding, and other Species of Motion, are deservedly prescribed. If we farther consider, that the Hemorrhoidal Vessels, which are extended longitudinally upon the Colon and Intestinum Rectum, are at a vast Distance from the Trunk of the *Vena Portæ*, and that all perpendicular Ascents, as they are called, are performed with Difficulty, we must easily perceive, that since the Blood passes with Difficulty thro' the *Vena Portæ*, and the Viscera of the Abdomen, it must readily stagnate, and, having burst the Vessels, especially if the Patient is seiz'd with Spasms, flow from the Mouths of the Veins. Hence it must be proper in Disorders of this Kind to corroborate the solid Parts, to restore the Motion of the Blood by Diluents, and to abstain from smart Purges, aloetic Preparations and Astringents; for these, by irritating the Intestinum Rectum, render this Discharge, which is sometimes salutary and wholesome, hurtful and injurious.

Having said enough of the Liver, I now proceed to take a View of the Uterus, a perfect Knowledge of which is of vast Importance in the Cure of those Diseases which are peculiarly incident to the Female Sex. The Uterus, according to the Discoveries of Anatomy, is likewise one of those Viscera which contains Blood, and which, besides its muscular and fibrous Substance, has a considerable Number of winding Vessels carried to it from the Hypogastric and Spermatie Vessels. Now since these Vessels are in various Places interwoven with and adherent to each other, it must necessarily happen, that the Blood, especially when in too great a Quantity, must, by reason of these winding Canals, make its way, in a languid manner, thro' this Part. Hence we may reasonably conclude, that if the Blood stagnates there, and is not duly return'd thro' the crooked Windings of the Veins, very terrible Disorders must ensue; for hence, as from a fruitful Source, proceed Effusions of Blood, viscid Concretions of Blood, commonly known by the Name of Polypuses, and innumerable other Disorders. Hence likewise proceed frequent Miscarriages; hence Dropsies,

Tumours, Cachexies, Obstructions, and all the Train of Disorders peculiar to the Female Sex.

As this is the Case, we may reasonably maintain, that in these Disorders all such things as retard the Motion of the Blood are carefully to be avoided, such as Acids, Styptics, and Astringents, because these Disorders are exasperated and increased by such Medicines. Those Medicines, on the other hand, are proper, which render the Blood fluid, florid, and susceptible of an easy Motion. Such Remedies are likewise proper as strengthen the solid Parts, that so the vital Juices may the more speedily convey their benign and salutary Influences thro' the whole Body; to this Class belong Baths, volatile oily Salts, and balsamic Bitters; which Medicines, if used sometimes, and with proper Caution, afford singular Relief in the above-mentioned Disorders. Allow me also to recommend Phlebotomy, which is an excellent Preservative against Abortion, and other Disorders peculiar to that Sex.

I now come to consider how beneficial a strict and anatomical Knowledge of the Structure of the Spleen is in the Practice of Physic. *D. Spigelius* long ago observed, and *Ruyssch*, the Glory and Ornament of our own Age, has proved by several Experiments, that the Spleen is composed of a vast Number of Vessels, Veins and Arteries, which has induced some of the Moderns to think it almost a vascular Substance, and, as it were, a sanguineous Gland. Hence we easily see, that the Spleen was originally design'd for attenuating the thick Blood convey'd to it, that so it might be transmitted in a purer and more florid State to the Liver. These Circumstances being discovered, we cannot fail to perceive what Injuries must ensue to Health from its being obstructed, becoming tumid, or stuffed with Blood; because by these means a thick and viscid Blood is from it convey'd to the other Parts, which, whilst it passes with Difficulty through the narrow Parts of the Vessels, settles in them, and becomes the Source of various Disorders. Hence 'tis to be observed in Practice, that in Disorders of this Kind, no Medicines are either so powerful, or so speedy in their Effects, as those which attenuate the Blood, open the Vessels, remove Obstructions, and strengthen the Tone of the Solids; for by these the languid Motion of the Blood is augmented, and its Circulation carried on without Interruption. For attenuating viscid Blood therefore, the plentiful drinking of wholesome Water is very proper; and the Reason is plain, why warm Baths, and Mineral Waters, are not only useful, but of all other Remedies the most sovereign in Disorders of this Kind. Now as the Circulation of the Blood is assisted by the Tone of the solid Parts, and as this Tone is proportionably destroy'd by the Distention of the Vessels, it plainly follows, that gentle Astringents, such as Chalybeats, and what we commonly call Splenetics, are not to be neglected in Disorders of this Nature.

Among the Number of sanguineous Viscera we may justly reckon the Kidneys, the Knowledge of whose Structure, as 'tis highly useful in Practice, deserves our most attentive Consideration; for the Secretion of the saltish Serum depends entirely upon the free Circulation of the Blood thro' the Kidneys. Now that this Circulation is naturally very expeditiously performed, may be proved by two Arguments: First, the emulgent Arteries are not far distant from the Heart, near which the *Systole* of the Arteries is very strong. Secondly, the Fluids taken into the Stomach are very quickly discharged by the Bladder. This principally happens upon drinking warm Liquors, such as Small-beer, and Infusions of Tea, and Paul's Betony, after plentiful Draughts of which, the Urine is very soon discharged in great Plenty. All the Disorders then incident to the Kidneys, such as Exulcerations, Inflammations, Paroxysms of the Stone, Suppressions, immoderate Fluxes of Urine, proceed from a Stagnation of the Blood. Hence the Physician may learn, that too great a Quantity of Blood, or a Plethora, is the Cause of these Disorders; and that Phlebotomy must of Consequence be very proper for the Relief of the Patient, and the Removal of the Disease. Hence we are also taught, that warm Baths, Mineral Waters, warm Infusions of Paul's Betony, and Ground-ivy, and all other Medicines which attenuate coagulated Blood, are beneficial in Disorders of the Kidneys.

The membranous Parts of the Body likewise claim our particular Regard, since, being endow'd with a most quick and exquisite Sense, 'tis of vast Importance for the Physician to understand their Structure. The Viscera then, which principally consist of Membranes, are the Stomach, the Oesophagus, the Intestines, and the Bladder. Now we learn from Anatomy, that such Parts as consist of Membranes, contain little Blood; but that they are furnished with a great many Branches of Nerves, and fleshy Fibres, that so they may both contract and dilate themselves. For these Reasons they are very subject to Spasms: Hence the Blood, flowing slowly thro' the compress'd and obstructed Veins, easily stagnates, and produces the most fatal Disorders; for from this Cause we find the most dangerous Inflammations arise, because the nervous Parts, on account of their incredible Connection and Communication with one another, at once irritate and affect the whole nervous System; so that



that a Complication of very terrible Symptoms are generally observed to accompany such Disorders, as acute Fevers, Watchings, Loathing of Food, Heat of the internal, and Coldness of the external Parts, Restlessness, Convulsions, and in some Degree Loss of Reason. Hence it likewise follows, that the more noble and valuable the Part affected is, the more terrible and dangerous the Inflammation ought to be judged; and that the Endeavours of the Physician to procure a speedy and seasonable Relief, ought to bear a direct Proportion to the Weakness and Danger of his Patients. This Theory plainly demonstrates, that, in order to protect the Body against the violent Assaults of such a Disorder, all those Remedies are proper, which preserve the Tone and Strength of the solid Parts, and are neither too astringent, nor too relaxing; among which I cannot help recommending nervous Medicines, temperate Balamics, warm Infusions of Herbs, volatile oily Salts, alexipharmic Essence, &c. In case of a Plethora, or too great a Quantity of Blood, Phlebotomy is also necessary; and all Purgatives, Emetics, Stoptics, and Opiates, are to be avoided. Acids in Food, viscid Substances, and such as induce a Coldness of the Body, are likewise to be shunn'd, because, by stimulating the Fibres into Spasms, they augment the Disorder. But the Importance and Largeness of the Stomach calls upon me to say something particular upon its Structure; one Peculiarity of which is, that, in the superior Cavity of its Left Part, the Blood-vessels are defended with a very thin Membrane, whilst at the same time thin canous and villous Membranes are extremely slender in the same Place. Hence a Reason may plainly be assigned, why, in Hypochondriac Disorders, and Obstructions of the Spleen, these Vessels, being distended with Blood, should be easily burst, the Consequence of which is, a plentiful Effusion of Blood from the Mouth. These Vomiting of Blood are also very common to Women, for no other Reason than that the Blood, which should have been carried off by the menstrual Discharge, is retained; and being convey'd to the Stomach, first distends, and then bursts these Vessels. Moreover, the Bottom of the Stomach, and its inferior Orifice, together with the Duodenum, are cover'd with a very thick and villous Coat, which covers the nervous sensible Coat; so that we have no great Reason to wonder why these Parts of the Intestines are endow'd with a less exquisite Sense than others, since Anatomy demonstrates, that the latter are entirely destitute of the above-mentioned Coat. This plainly appears to be the noble Result of exquisite Contrivance, and unerring Wisdom; for 'tis without Doubt intended to hinder the Bile and Aliments, which are principally lodged in these Parts, from irritating this nervous Coat, and thereby proving prejudicial to Health. Hence we may lay this down as a Rule in Practice, that saline Purges, and gentle Openers of the Bile, are of no Use in Disorders where a Load of acid or bilious Matter is lodg'd in the Bottom of the Stomach, in the Duodenum, or the Beginning of the Jejunum; for these Parts, being only endowed with a dull and heavy Sensation, resist the faint and languid Stimulus of such weak and ill-chosen Medicines. But no Medicines are better calculated for dislodging these remote and deep-rooted Sordes, than gentle Emetics; for these, by the Sulphur, and subtil caustic Salt, of which they consist, penetrate the Tunica Villosa, or villous Coat, and by stimulating the nervous Coat, easily excite Spasmodic Contractions of the Parts; whence the Sordes, lodg'd within them, are drawn forth, as it were, by the Energy of the Medicine.

Whilst I am speaking of the Duodenum, it will not be amiss briefly to touch upon the more curious Circumstances of its Structure, which few have as yet sufficiently adverted to. Heaven then, whose Works are always perfect, has bountifully contriv'd, that this Intestine should resemble a little Bag, or Stomach, that so the Bile, pour'd from its respective Duets into this Intestine, may remain the longer in it, and by that means be the more intimately mixed with our Food; a Circumstance which is absolutely necessary to Health. As this is the Case, it is not to be doubted but a great many Disorders proceed from this Intestine, it too large a Quantity of Bile is lodg'd in it; and especially if thro' the Languidness of its Motion, and the Length of its Stay there, it becomes corrupt, and assumes a violent Quality. Certain it is, and I only affirm what I know from Observation, that this Intestine, as above circumstanc'd, contains the latent Cause of many terrible Disorders; for to it we may principally refer Intermitting, Tertian, Burning, and Bilious Fevers, Dysenteries, Diarrhoeas, and Cardialgias. In this Intestine also lurks that malignant Matter, which, being afterwards translated to the Blood, occasions Small-Pox, Purple Fevers, and Disorders of various Kinds. Hence we may rationally conclude, that no Medicines are more efficacious, either for preventing these Disorders when dreaded, or removing them when present, than gentle Emetics, whereby the Seeds of the Disease may be dislodg'd, and the Sordes duly evacuated, lest they should communicate a Taint to the Blood. This Intention is also answer'd by various absorbent Abstersives, which act immediately on the Matter of the Disease, and break the putrid matter which prove its Cause.

I should be guilty of an unpardonable Neglect, if in this Place I fail'd to take Notice of the Bile, that Humour so necessary for the Welfare of the Body, and of which the Abundance loudly calls for our Admiration and Surprise, since in the Liver it is plentifully generated, and convey'd to the Intestines by two Duets; for which no other Cause can be assign'd, than that this Humour is absolutely necessary for the Body, since it enters the Duodenum and first Intestines, mixes with the Chyle, and proves a proper Stimulus for discharging the Contents of the Intestines. Hence we learn, that the Bile is vastly conducive to Health, and that its being either corrupted, or deficient in Quantity, produces various Disorders. Hence we also learn an useful Maxim in Practice, which is, That all those Substances are excellent Preservatives of Health, which either recruit the diminish'd Bile, or restore its Temperament, and balsamic Bitterness. This Intention is excellently answer'd by bitter Extracts of Wormwood, lesser Centaury, Carduus Benedictus, Extract of Aloe, and other Substances of a like Nature; for as the Bile, in its natural State, strengthens the Motion of the Intestines, proves a proper Stimulus for the Discharge of the Excrements, and incides the acid and viscid Humours of the Body, and by that means preserves it from cold Disorders, we have no Reason to doubt, but that, in Cases of this Nature, Bitters, administer'd in Conjunction with Balsamics, are highly proper and expedient: For this Reason these Medicines are greatly beneficial in Cachexies, Dropsies, Hysterie and Hypochondriac Disorders.

It will not, on this Occasion, be improper to say somewhat of the Circulation of the Lymph, and shew what an Advantage the Knowledge of it must be to the Practitioner. We must first then consider, that the Lymph, or most thin and refin'd Part of the Serum, is secreted from the Arteries, convey'd by means of the lymphatic Vessels to the thoracic Duet, and returned to the Heart, with this View, that the Blood may be sufficiently attenuated by a proper Fluid; for we learn, that our Bodies are supported and maintain'd by a due and proper Quantity of Fluids; and 'tis plain from Chymical and Statical Experiments, that our Bodies in the Complex contain eleven Parts of Fluid to one that is Solid. Hence a Fluid must necessarily be the principal Element of the Blood, whereby 'tis preserved, and so diluted, as to pass easily thro' the narrow Channels of the Vessels. Hence we must know, what Fluid, even when taken in the greatest Quantity, must be conducive to Health, which must be that which is lightest, thinnest, and best calculated for mixing with the Blood. For this Reason a Physician ought carefully to inquire into the Qualities of different Waters, that so he may know which are best calculated for the State of his Patient, and most conducive to Health. Hence the Physician must also perceive, that nothing is so effectual for attenuating a thick Blood, as an Abundance of Fluids; and that in the most obstinate Disorders arising from Obstructions of the Viscera, and Viscidity of the Blood, hot Baths, and Mineral Waters, afford the noblest Relief, provided they are liberally drank.

The Anatomical Contemplation of the Lymph also teaches us, that its retrograde Course is perform'd with a great deal of Difficulty; for which Reason bountiful Nature has lent her skilful Aid, and furnish'd the lymphatic Vessels with many bye Passages, whilst she has at the same time fortify'd the conglobate Glands, thro' which the lymphatic Vessels pass, with nervous Fibres, that by their Strength and Impulse, the Course of the Lymph to the Heart may be the more readily performed. Hence Azzali, that ingenious Inquirer into the Structure of the lymphatic Vessels, judiciously compares them to Siphons. But if this Motion should prove languid; if the Lymph should be viscid, or the Strength defective, the Lymph itself settles about the Glands, and obstructs them. Now if the Lymph should want a due Degree of Motion, it corrupts, turns vapid, and lays a Foundation for a great many, and those very terrible Disorders; such as those, which, from an Impurity of the Lymph, deform and spoil the Skin; among which are Leprosies, Herpes, Pustules, Itches, Scabies, and the Lues Venerea. Having then found out the Cause of Disorders of this Nature, which without Anatomy we cannot possibly do, the Physician is to endeavour to restore the Lymph to its Circulation; or, in other Words, to open the obstructed Glands, that the Motion of the Lymph may be increased. In a Case therefore of this Nature, Bleedings, Purgatives, Absorbents, or Salts prove ineffectual, and more powerful Medicines must be applied; such as penetrate, whose Texture remains sound and entire, and which, by stimulating the Fibres, open the Glands and Vessels. The Mineral Kingdom supplies us with Medicines of this Kind, such as Sulphurs of Metals, Antimonial and Mercurial Preparations, the wonderful Efficacy of which upon the Glands, and Motion of the Lymph, cannot be sufficiently extoll'd.

If the free Circulation of the Lymph is prevented, especially from Obstructions of the Liver, the lymphatic Vessels first swell, and then break. Hence the Serum, being extravasated in Abundance, produces various Species of Dropsies, which re-



ceive their different Denominations from the respective Parts they affect : Whence it is evident to a Demonstration, that these Disorders admit of a Cure with Difficulty ; for it requires no great Labour to shew how hard a Task it is to soften indurated Viscera, and consolidate burst Vessels.

I now come to consider the Brain and Nervous System; with a View to illustrate the extensive Use that an accurate Anatomical Knowledge of these Parts is of in Practice. And, indeed, the Antients called these Parts cold, not because they wanted their proper Degree of Heat, but because, when compar'd with other Members, they were furnish'd with a proportionably smaller Quantity of Blood. Besides, the Substance of the Brain is of itself void of all Sensation : hence it plainly appears, that the *Deficiency of the Blood has a very considerable Influence upon those Parts*; since in Bleeding, or where a large Hæmorrhage happens, we observe the Patient to faint away, which is a convincing Proof, that by that means the Nourishment, as it may be called, is drawn away from this Part. Hence we learn, that warm Medicines are particularly beneficial in Disorders of the Brain, because, by strengthening its Membranes, they occasion a quicker and more expeditious Circulation of the Blood thro' it. For this Intention Cephalics, as they are commonly called, are deservedly commended ; such as Oils distilled from aromatic Herbs, apoplectic Balsams, and volatile oily Salts ; for if the Membranes of the Brain are not sufficiently strong, the Blood is easily retained in them ; and hence very terrible Disorders arise, such as Apoplexies, Loss of Voice, Melancholy, Difficulty of Sight and Hearing, Gutta Serenas, Incubi, frightful Watchings, Sleep, Disorders and Diminutions of the several Senses and Motions of the Body. But as Corroboratives are excellently calculated for the Cure of these Disorders, so no Medicines are more fatal to the Brain than those which induce too great a Relaxation, Coldness, or Heaviness upon it. Of this Kind are all Substances that abound in Vapours, as moist Air, too much Sleep, the Affections of the Mind, and especially Sorrow, together with all such Things as strike the Nerves of the Head with their sulphureous Effluvia ; such as Opiates, Narcotics, as also Acids, refrigerating Medicines, and autumnal Fruits. In these Disorders, on the other hand, volatile, oily, and balsamic Salts, are beneficial ; the principal of which is my liquid Balsam, which since 'tis compos'd of the best and most genuine Oils, scarcely to be found in any other Composition, affords a surprising Relief in Disorders of the Brain and Nerves. In Disorders, therefore, which proceed from Obstructions of the Head and Nerves, such as a Palsy, I must for the same Reason recommend balsamic Medicines apply'd externally, not so much to the affected Part, as to the Origin of the Nerves, and the Nape of the Neck.

I should now handle the Doctrine of the Nerves at large; did I not think it sufficient to touch upon it on this Occasion : and without Doubt, if a Physician lies under Obligations perfectly to know any Part of Anatomy, 'tis certainly that of the wonderful Structure and Consent of the Nerves ; for unless he knows this, he can never discern whence any given Series of Symptoms draw their Origin, nor what Disorders affect only by Consent. Whence the many Errors that might slip into Practice, may be easily conceived ; for this is to be laid down as a general Caution, that the Cause of the Disease is to be removed, and that the Physician goes preposterously to work, who being ignorant of Anatomy, and overlooking the Cause, directs his Views only to the Symptoms. Now the Reason or Cause of these Symptoms is no other than that the nervous Parts are intimately connected with one another, whence their surprising Consent arises ; for 'tis certainly wonderful, that when one nervous Part should be disturbed, the whole Body should, in Consequence of it, be affected. Thus from intense Pains, even of distant Parts, from a wounded Nerve or Tendon, from the Stone, the Colic, or Iliac Passion, proceed Fevers, Deliriums, Convulsions, and some other most terrible Disorders.

The intercostal Branch, and the eighth Pair of Nerves, run almost thro' all the Parts of the Body ; whence it generally happens, that Vomiting, Diarrhoeas, Asthmas, Constipations of the Belly, Suppressions of Urine, a Difficulty of Breathing, and a Pain in the Breast, succeed Disorders of the Head, Apoplexies, Epilepsies, or Contusions. The same happens in Hypochondriac or Hysteric Disorders ; for if, in this Case, the nervous Foldings of the Mesentery, and the Nerves of the Stomach and Lungs, should happen to be distorted by Flatulencies, or any acrid Matter, Suffocation, Palpitation of the Heart, Vertigo, Pain of the Head, Fainting, Pain of the Neck, Asthma, Cataplexis, and Convulsions, threaten the Patient. Now the Physician would do nothing, who, only taking the Symptoms into Consideration, should prescribe Remedies against these Disorders ; whereas, if the real Cause was once thoroughly known, such a Complication of Disorders might often be removed by a single carminative Clyster, or an antispasmodic Medicine. With a Paroxysm of the Stone are frequently join'd Vomiting, the Colic, Stupor of the Thigh, Retraction of the Testes, and what is still more remarkable, Epilepsy, and an uncommon

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Pain of the Breast ; for which Symptoms no other Cause can be assign'd, than that the intercostal Nerves, and those of the eighth Pair, are inserted into the Bladder and Kidneys. Overlooking Symptoms then, the Physician is to make it his chief Business to remove the Pain of the Stone, which being once done, the other Disorders will disappear with it ; for which Intention Baths, oily Ointments, and gentle Anodynes, are to be prescribed, that by relaxing the Passages the Pain may be mitigated or removed. Equally necessary is that Observation concerning Worms, which, if lodg'd in the Intestinum Ileum of Children, corrode its Membrane, and produce Spasms and Convulsions : Which Symptoms will nevertheless easily cease ; if the Physician makes a right Judgment of the Cause, and endeavours to kill the Worms by proper Anthelmintics. Intense Pain, Tenesmus, Loathing of Food, Watchings, and cold Sweats, often succeed an Erosion of the Bladder from the Stone. If by the Assistance of Anatomy we are directed to the Cause of this Distemper, it will easily appear, that in order to remove its concomitant Symptoms, the Physician's first and principal Care ought to be placed in removing the Stone, which is best and most effectually done by oily and balsamic Medicines ; or, if the Case is very urgent, by extracting the Stone by a skilful Hand.

It would be tedious to mention the other Parts which are subjected to the most violent Torments, in Consequence of the incredible Connection and Communication of the Nerves : It will not, however, be improper to say something upon this Head. The most violent Disorders then, such as Diarrhoeas, Coughs, Fevers, Constipations of the Belly, Heaviness about the Breast, Convulsions, and other Disorders, accompany the Tooth-ach, and difficult Breeding of Teeth in Children ; but these Symptoms, when they are not very violent, immediately remit, upon the Pain being allay'd, or the faulty Tooth pull'd out, which was the Cause of the Disorder : But 'tis surprising, what racking Pains accompany an Inflammation of the Stomach ; because this Part, having very considerable Nerves, affects at once the whole Body. Hence by taking Poison, or by some acrid Matter lodging in the Stomach, intolerable Heart-burnings, Deliriums, and Uneasinesses, which in the Issue prove fatal, are produced ; the internal Parts, but especially the Region of the Breast, are burn'd as it were in a Flame ; the external Parts are cold, and the Pulse unequal ; which Symptoms, as they are very terrible and dangerous, may justly alarm the Physician ; yet they disappear, if the State of the Stomach is duly adverted to, and the Poison thrown out by means of Oil or Milk, or the Acrimony of the Matter destroy'd by proper Remedies. Nor is this less subject to happen in Wounds of the Tendons ; for sometimes a Train of Disorders are the Consequences of a wounded Finger or Toe, or a Corn unskilfully cut ; for then Cynic Spasms, Convulsions, Pains, and other Symptoms, afflict the Patient, and put him in the highest Danger ; but the Fury and Violence of the Symptoms remit, if, by a seasonable Remedy, the Pain of the Nerve is mitigated.

In the Hysteric Passion, that Disease peculiar to the Female Sex, the Patients fall down as if they were Thunder-struck, or in an Apoplexy, since on account of the Nerves of the eighth Pair, and the Par Vagus, which are inserted in the Uterus, the Membranes of the Brain are at the same time seiz'd with Spasms. But, not to mention other Disorders, which in this Disease afflict the tender Sex, they all proceed from no other Cause than this, that the Nerves are carry'd in one uninterrupted Course thro' the Whole of the Body.

From this surprising Consent of Nerves, we are often to account for the Diseases, in which the Bile is justly accused as faulty ; for as the hepatic Congeries of Nerves, which goes to the Gall-bladder, passes also thro' the Pylorus, the Pancreas, and the Duodenum ; the Reason is plain, why, the Stomach being irritated, the Bile should be discharged both from its Duets and Cysts ; and why the Jaundice stimulates and provokes the Stomach itself to Nausea and Vomiting.

There is also a great Consent between the Bladder and Ureters, because the same Nerves pass thro' these Parts in one uninterrupted Course. Hence if the Beginning of the Ureters is afflicted with a Stone or Spasms, there very often happens at the same time a Suppression of Urine, a Strangury, and a fruitless and ineffectual Endeavour to make Water.

But enough on the Consent of the Nerves, which, if every thing was to be suggested, would detain us too long : The Physician in the mean while may profit so far from this, as to be able to distinguish the Cause from the Symptoms of a Disease. If any one desires to read more upon this Subject, he may consult that excellent Writer, *Vieussens*, who has laid down the Doctrine of the Nerves at greater Length. Tho' all I have advanced has a most direct Tendency to shew the Use of Anatomy in Practice, yet if I was to launch out into Surgery, Anatomical Knowledge would still be found more beneficial to it : For the Effects of Surgery are the most evident of any in Medicine ; whereas in the Cure of internal Disorders there is at least a Possibility of doubting whether the Cure be performed by the Benefit of Nature, or the Virtues of the Medicine. But



in that Branch of the Art, by which Cures are performed by the Surgeon's, it is evidently and immediately perceptible to the Eye, that the Patient receives Assistance from his Hand. Hence it easily appears how great Praise a practical Physician may reap from the joint Knowledge of Anatomy and Surgery. I shall at present add no more concerning the Use of Anatomy in Surgery, since the Subject is of such Importance and Extent as to deserve a more particular Discussion. *Hoffman Medicina Rationalis Systematica, Vol. 6.*

*Hoffman*, tho' no inconsiderable Writer, has, however, in the preceding Dissertation, given a very confus'd Account of the Practice of the Antients. If amongst these he includes *Hippocrates*, he has done him great Injustice, by charging him with using too copious a *Materia Medica*, with a Neglect of gentle Laxatives, and with all the Errors and Dreams of later Physicians, who built their Theories upon the Peripatetic and Chymical Philosophy.

#### The HISTORY of ANATOMY.

With respect to the Antiquity of Anatomy, it seems scarcely possible, but that the Slaughter of Beasts for the Use of Man, Casualties, Murders, and the Accidents of War, must have furnished Mankind with a general Knowledge of the Structure of the Parts, in very early Ages of the World. But it is not very certain at what Period it began to be cultivated as a Science. This, however, must have been very early, especially if we pay any Regard to *Manetho*, the famous Egyptian Writer, who, according to the Report of *Eusebius*, relates, that *Athotis* an Egyptian King wrote some Treatises of Anatomy. This King, if the Egyptian Chronology was to be depended on, liv'd many Ages before *Adam*. This, however false with respect to Time, amounts to a sort of Proof of the Antiquity of the Science I am speaking of.

It is infered, that *Solomon* was no Stranger to the Structure of the human Body, from a Passage in the twelfth Chapter of *Ecclesiastes*, which is thus :

*Remember now thy Creator in the Days of thy Youth, while the evil Days come not, nor the Years draw nigh, when thou shalt say, I have no Pleasure in them ;*

*While the Sun, or the Light, or the Moon, or the Stars, be not darkened, nor the Clouds return after the Rain :*

*In the Day when the Keepers of the House shall tremble, and the strong Men shall bow themselves, and the Grinders cease, because they are few, and those that look out of the Windows be darkened :*

*And the Doors shall be shut in the Streets, when the Sound of the Grinding is low, and he shall rise up at the Voice of the Bird, and all the Daughters of Music shall be brought low ;*

*Also when they shall be afraid of that which is high, and Fears shall be in the Way, and the Almond-tree shall flourish, and the Grasshopper shall be a Burden, and Desire shall fail : Because Man goeth to his long Home, and the Mourners go about the Streets :*

*Or ever the Silver Cord be loosed, or the Golden Bowl be broken, or the Pitcher be broken at the Fountain, or the Wheel broken at the Cistern :*

*Then shall the Dust return to the Earth as it was ; and the Spirit shall return unto God, who gave it.*

It is evident, that *Solomon* is describing figuratively the Decays of the several Parts, which happen in old Age. But the whole Passage is too enigmatical to determine how far the Author was acquainted with the Structure of the Body.

It is very certain, that before, or, at least, in the Days of *Homer*, Anatomy was much cultivated, since this Author appears to have had a competent Knowledge of the Parts, and to have been very well vers'd in the Renunciation of Wounds, as the Moderns call it, so as to give an accurate Account of their Effects in almost all Parts of the Body.

But *Hippocrates* is the first Author at least extant, who treated of Anatomy scientifically. This divine Writer, conscious of his noble and exalted Genius, published many Anatomical Observations, which, tho' disjointed and scatter'd here and there in his Works, yet make up an entire Body of Anatomy, when taken together : But that he made it his principal Business to understand and explain the Bones of the human Body, is plain from those valuable and well-wrote Books upon Fractures, and the Joints, which evidently discover his perfect Knowledge of, and intimate Acquaintance with, the Bones ; and that his Diligence, his Industry, and Skill in this Way, might the more effectually be transmitted to future Ages, he consecrated, if we may believe *Pausanias*, a brazen Skeleton to the *Delphian Apollo*.

The Writings of this great Man are interspersed with many Things relating to the Blood, which as they seem to shew his Knowledge of its Circulation, and also of the Secretions of the Humours, Dr. *Douglas* has pointed out such of them as seem to be the most glaring and unexceptionable Proofs of this Point.

The first of these Passages runs thus : *The Veins diffused thro' the Body supply it with Spirit, Fluidity πύμα, and Mo-*

*tion, whilst many of them branch out from one.* But 'tis to be observed, that by Veins *Hippocrates* in this Passage means Arteries.

The second is in his Book *de Alimento* : *The Liver, says he, is the Root of the Veins, and the Heart that of the Arteries ; from these the Blood and Spirits flow, and thro' these the Heat is diffused.*

The third is in his second Book *de Morbis* : *And if he recover, or get the better of his Disease, so that the Blood becomes warm, whether of itself, or by means of such Things as are administered ; it ferments, is attenuated, and put into Motion, carries Spirits along with it, despumates itself, and is separated from the Bile, and so the Patient becomes sound.*

And again, *But, says he, whilst the Blood does not move, it cannot be but the Body must remain in a State of Rest and Sluggishness ; and a little after, If the Coldness and Coagulation of the Blood are perfect, the Patient dies.*

The fourth Passage is in his second Book *de Diæta* : *For the Blood being warm'd and attracted, those Things which are in the Body perform a quick Circulation, [ἀεὶόδω] and then the rest of the Body is purg'd by means of the Spirits ; then that which is compact, becoming warm, is attenuated and eliminated from the Body thro' the Skin, and this is called a warm Sweat : And after this Excretion, the Blood is restored to its natural State, and the Fever remits.*

The fifth Passage is in his Book *de Insomniis* : *All these Symptoms, appearing, are the Signs of Health, and that the Body, together with all its Ingestions and Secretions, [ἀποκρίσεις] are sound.* And again, *But Rivers, not flowing in their usual Manner, may be compared to the Circulation of the Blood, [ἐκείνου ἀεὶόδω] when they overflow their Banks, they resemble the Excesses ; and when they cease to fill their Channels, they resemble the Deficiency of the Blood.*

The sixth Passage is in his first Book *de Diæta* : *For when the Circulation is slow, the Senses are lost by little and little, and those who are most acute are a little put out of Order, by reason of the Slowness of the Circulation.*

The seventh is in his Book *de Flatibus* : *For the Blood itself, being naturally warm, and propell'd by a certain Force, cannot soon make its Way thro' a narrow Passage, since it may meet with many Letts and Hindrances, whence Fevers, Pains, and other Disorders, arise.*

These Sentiments favour very much of the modern Theory of Fevers, arising from Obstructions of the Capillary Vessels.

The eighth Passage is in his Book *de Morbo Sacro* : *The Spirit rests, the Brain is compress'd, and the Blood (ἐὼν) stands still.*

Many Passages, enumerated at large by *Joh. Ant. Vander Linden*, in a Treatise intituled, *Hippocrates de Circuitu Sanguinis*, might be subjoined to these ; from which we may infer, that he had some Notion of the Circulation of the Blood.

Thus far Dr. *Douglas*. It cannot be doubted but *Hippocrates*, and all the Antients, knew that the Blood circulated ; but it is certain, that they did not know how, or in what manner, the Circulation was performed ; this Discovery being reserved for the great *Hervæy*.

It would be superfluous to give a particular Detail of the Anatomy of *Hippocrates* in this Place ; because whatever is remarkable, is taken Notice of under the respective Articles to which they belong. I must, however, observe that *Le Clerc* is far from thinking, with Dr. *Douglas*, that all the Anatomical Observations dispersed in the Works of *Hippocrates*, amount to an entire System. He says, that it is no easy Task to give a just Extract of the *Anatomy of Hippocrates*. Three things concur to deprive us of the Light that were to be desired in this Point. In the first Place, there are several Contradictions in what *Hippocrates* has wrote upon this Subject, or rather in the Books ascribed to him as their Author. Secondly, though one should collect all that he has said concerning each Part, yet still it would amount to nothing complete or coherent. In fine, tho' so many Faults had not crept into the Text, or tho' there were less Variety in the original Manuscripts, yet his Style is so concise, and some Passages in him are so obscure, and conceived in Terms so peculiar to himself, that 'tis not always easy, even for the greatest Masters of the Greek Language, to comprehend his Meaning.

For these Reasons, one might justly lament the Loss of a Book wrote by *Galen* on the *Anatomy of Hippocrates*, were not this Author to be suspected, on account of his Partiality, with regard to that ancient Physician : Instances of which, even in point of Anatomy, are to be met with.

The Assistance which, upon this Occasion, one might expect from Translators, and modern Commentators, is also very inconsiderable : If any Light is to be got from them, we ought to depend less upon these of the present, than those of preceding Ages ; since 'tis to be dreaded, that the former, full of their new Discoveries, imagine they see them every-where ; falling into the like ridiculous Error with those who find in *Homer* the most exquisite Delicacies, and refin'd Improvements of all the Arts and Sciences ; or into the still more unaccountable Enthusiasm of others, who find the *Philosopher's Stone* in all the



the Books of the Antients, whatever the Subject handled should happen to be.

It is remarkable, that *Hippocrates*, in his Treatise *de Locis in Homine*, says, *That the Nature of the Body is the Principle, or Foundation, on which all medicinal Reasoning ought to be supported.* But in his Book *de Prisca Medicina*, there is a Passage which appears to be contradictory to the preceding: *Some Physicians*, says he, *and some Philosophers, affirm, that one cannot be Master of the medicinal Art, without knowing what Man is, what his first Formation, and the Manner in which his Body is composed, are. All that these Men have said, or wrote, concerning the Body, seems to me rather to belong to the Art of Painting than to that of Medicine; and I am persuaded, that one cannot have a more distinct Knowledge of the Nature of the Body, than by Medicine, as those who are Masters of that Art must easily perceive.*

These Passages, tho' seemingly inconsistent with each other, are, in my Apprehension, however, to be reconciled. It appears by many Passages in *Hippocrates*, that some Philosophers; in his Days, set up for a Knowledge in Medicine, merely upon the Strength of Hypothesis, and the Dreams of Theory, supported, in their Opinion, by the Structure of the Parts, without consulting Nature, and her Method of operating. Instead, therefore, of observing diligently how Nature really acts in producing and curing Diseases, they determined, *a priori*, how she necessarily must act, according to their Principles, which they seem to have taken for granted. In this last Quotation, then, our Author has these Philosophers in view, and their Abuse of Anatomy; and, indeed, there seems a great deal of good Sense in what he insinuates, which is, that Anatomy; supported by Observation, lays a noble Foundation for rational Medicine; whereas all rash Conclusions, drawn from the Structure of the Parts, before Experience has confirmed them, are at best precarious, and generally pernicious to the Practice of Physic.

*Democritus* was cotemporary with *Hippocrates*: With respect to his Knowledge of Anatomy, we learn no more, than that when the People of *Abdera* called *Hippocrates* to cure him of a supposed Madness, this Physician found him dissecting Animals, in order to discover the Cause of Madness, which he apprehended had its Residence in the Bile; upon which *Hippocrates* reported to those who employ'd him, that *Democritus* was not only in his Senses, but was the wisest of Men.

*Diogenes Laertius* gives the Title of a Book wrote by *Democritus*, which should seem to be Anatomical, as it is *Of the Nature of Man, or of the Flesh*.

*Pythagoras*, according to the Report of the same *Diogenes Laertius*, had some crude Notions of Anatomy, which are not of Importance enough to relate, since they are drawn from Speculation more than Reality.

*Empedocles*, a Scholar of *Pythagoras*, as we learn from *Galen*, had some very singular Notions of the Structure and Uses of the Parts of Animals; for he imagined, that certain particular Parts of their Bodies were contained in the Seed of the Male; and others in that of the Female; and that, from this Circumstance, the Venereal Desires of both Sexes were to be accounted for; foolishly imagining, that the Parts, thus separated, had a natural Tendency to join, and be again united with, each other.

With regard to Respiration, he thought it was performed in this manner: *As soon*, said he, *as that Humidity, of which there is great Store on the first Formation of the Fœtus, begins to be diminished, the Air, insinuating itself thro' the Pores of the Body, succeeds it: After that the natural Heat, by its Tendency to make its Escape, drives the Air out; and when this natural Heat enters the Body again, the Air follows it afresh. The former of these Actions is called Inspiration, and the latter Expiration.* The Fœtus, according to this Philosopher, respired in the Belly of the Mother.

The Sense of Hearing was, according to him, excited by the Air striking on the Inner-side of the Ear, which is wreath'd in form of a Shell, and fixed to the most elevated Part of the Body, as it were like a small Bell, which was sensible of all the Undulations and Impulses of the Air which should enter it.

The *Flesh* was, according to him, composed of an equal Portion of the four Elements. The *Nerves* consisted of Fire, Earth, and two Parts of Water. The Nails were formed by the Extremities of the Nerves, cool'd and harden'd by their Contact with the ambient Air. The Bones appeared to him to be composed of equal Parts of Water and Earth; or, at least, he thought, that these two Elements predominated over the other two in their Composition. Sweat and Tears he took to be Blood attenuated, and rendered thin.

The Seeds of Plants he esteemed analogous to the Eggs of Animals, which drop at the Time of their Maturity.

*Alemæon* of *Crotona*, who was also a Disciple of *Pythagoras*, deserves to have his Name handed down to future Ages, if, as *Chalcidius* in his Commentaries upon the *Timæus* of *Plato*, assures us, he was the first who dissected Animals, in order to know the Parts of which their Bodies consist: But Time having robb'd us of his Writings, we know no more of his Anatomy

than what we find in some antient Authors; and even what we meet with in them; seems rather to relate to Physiology than Anatomy. He imagined, that the Sense of Hearing was occasioned by the Ears being hollow within; and that all hollow Places resounded when any Sound enter'd them; and that Goats breath'd partly by their Ears.

With regard to the Sense of Smelling, he maintained, that the Soul, of which the principal Part is, according to him, lodged in the Brain, received the Smells drawn in, in Respiration. He imagined, that the Tongue distinguished Tastes by its Humidity; its moderate Heat, and its Softness. He thought the Seed was a Part of the Brain; and that the Fœtus was nourished in the Womb, by drawing a Supply at all the Parts of the Body, which is externally porous like a Sponge. Health, in his Opinion, depends on the Equality of Heat and Dryness, of Coldness and Humidity; and even of Sweetness and Bitterness, and other sensible Qualities. Maladies, on the other hand, he thought arose, when one of these Qualities predominated, and by that means broke the Union and Connection.

That *Aristotle* applied himself diligently to Anatomical Studies, is sufficiently plain from his Writings; for they abundantly convince us, that he does not relate every thing on the Authority of others, but that he was an immediate Spectator of them; tho', in his Days, Dissections of the human Body were very rare and uncommon. It must, however, be owned, that he borrowed many things from *Hippocrates*, which will not fail to appear, upon comparing the two Authors together: But *Hieron. Mercurialis* affirms, without Reason, that he borrowed all his Sentiments on Anatomy from others.

*Alexander* the Great, whose Preceptor *Aristotle* was, being desirous to know the Nature, and different Properties, of Animals, ordered him to bend his Thoughts that way; and for that Purpose furnished him with eight hundred Talents, which amount to about a hundred and fifty-five thousand Pounds sterling. That Prince supplied him also with several Thousands of Men from the different Quarters of *Greece* and *Asia*, who had Orders to obey him, to communicate to him all they had learn'd from Hunting and Fishing, and even to nourish and bring up all sorts of Animals, with no other View but to discover the Peculiarities of each Species, and communicate them to him.

One might justly think, that, with so considerable Assistances, *Aristotle* should not have failed to produce something very exact and accurate upon this Subject; and yet even the Antients observed, that he had advanced several things contrary to Truth. He may be excused, in this Point, by saying, that, in this Case, he was obliged to rely on the Authority of others, since he could not possibly see and do every thing himself. But suppose he had been obliged, on some Occasions, to rely on the Relations and Accounts of these Men; for Instance, in what relates to certain Properties of Animals, discovered by chance; yet there are other Occasions, on which he must have been an Operator himself; or, at least, must have been present; and given Directions to another. Of this Kind are the things relating to Anatomy. What Opinion, then, must we have of the Accuracy of this Philosopher, when we find him maintaining, that all Animals have their Necks flexible, and consisting of Vertebrae, except Wolves and Lions, whose Necks, he says, consist of one Bone? What Notion shall we also entertain of him, when he assures us, that the Bones of Lions contain no Marrow? a thing contrary to all the Experiments that have hitherto been made. The Curious may consult the learned *Barrichius*, with regard to the other Errors into which *Aristotle* has fallen, in respect of the Anatomy of the Lion, the Eagle, and the Crocodile. *Aristotle*, however, has had Errors laid to his Charge, of which he never was guilty. Those, for Instance, who publish'd the Account of a Dissection of a Lion at *Paris*, in the Academy of Sciences, have also been at some Pains to point out the Blunders of this Philosopher, with regard to the Anatomy of that Animal; and all they advance, on that head, may possibly be true; but, in one Passage, they seem to make *Aristotle* say what he never so much as dream'd of. We find these Words in his Book *de Physiognomia*: φαίνεται λίον τῶν ζῴων ἀπαντῶν τελειότατα μεταληφέναι τῆς τοῦ ἀρρενὸς ἰδέας. Which the *Latin* Interpreter translates thus: *Videtur Leo omnium animalium perfectissimum animal in assumendo maris formam.* Here *Aristotle's* Words are explained as if he meant, that the *He-Lion* has, by way of Eminence, and beyond all other Animals, the visible and apparent Marks of his Sex. This is the Interpretation of these Gentlemen, and, in order to prove that *Aristotle* was mistaken, they add, that the Urethra of the Lion, that is to say, the Canal of his Penis, together with its Ligaments, appears externally to be only three Inches and an half in Length: Their Conclusion had been just, if *Aristotle*, as they and *Barrichius* imagined, had meant, that the Lion, of all other Animals, has that Part which distinguishes the Sex the largest, and most apparent: But, in my Opinion, this was not so much as in his Mind; and, I believe, he meant no more, than that the Lion does, of all other Male Animals, distinguish himself the most easily from the Female, by a grand and masculine Air peculiar to himself.

I trans-



I translate the *Greek Word* *ἰδέα* by the *English Word* *Air*, or the *Latin Word* *Species*, which precisely corresponds to the *Greek Word*.

The several Dissections which *Aristotle* made of the different Species of Quadrupeds, Birds, Fishes, and Insects, taught him many things concerning the Uses of the several Parts of each Species. I shall not, here, examine every Particular he advances upon this Head, or upon the Differences that are found among these Parts, and their respective Uses; but I shall give his Sentiments, with respect to the Construction and Uses of the Parts, which are common to the Animals commonly called perfect, such as Man and Quadrupeds.

*Aristotle* looked upon the Heart as the Source and Principle of the Veins and Blood. The Blood, says he, passes from the Heart into the Veins; but he says, that it comes from no Part to the Heart. He moreover maintained, that two Veins proceeded from the Heart, the one from the Right Side, which is the larger, the other from the Left, which is lesser, and which he called the Aorta. Here 'tis proper to observe, that this Philosopher, according to *Galen*, (*de Venar. & Arteriar. Diffect.*) was the first who gave this Name to the great Artery; which proves, that *Hippocrates*'s fourth Book *de Corde*, where this Word is found, was not wrote by him. *Aristotle* thought that these two Veins convey'd the Blood to all the Parts of the Body. He also imagined, that there were three Cavities in the Heart, which he calls Ventricles. Of these three Ventricles, that in the Middle, the precise Situation of which he does not determine, is, according to him, the common Principle of all the rest, tho' it be the smallest; the Blood which it contains is also the most temperate, and most pure. The Blood of the Right Ventricle is warmest, that of the Left coldest; and this last Ventricle is the largest of the three. All these Ventricles have a Communication with the Lungs by Vessels, which are quite different from the two great Veins already mentioned, which Vessels distribute themselves thro' all the Substance of the Lungs.

*Aristotle* not only made the Veins, or Blood-vessels, but also the Nerves, to derive their Origin from the Heart; and he founded his Opinion upon this, that the largest of the Ventricles of the Heart, according to him, contains small Nerves: The Vein which he calls the Aorta is nervous, and is itself like a true Nerve towards its Extremities, since it has no Cavity, and is stretch'd out in the same manner with Nerves, where it terminates near the Articulations of the Bones. He also maintains, that there are a Number of Nerves in the Heart, and that they are of singular Use there, since its Contraction and Dilatation depend upon them. He seems, in this last Passage, to mean the Tendons or Fibres which contract and dilate the Heart; and if *Hippocrates* confounded the Nerves with the Tendons and Ligaments, it does not appear, that *Aristotle* better distinguished these Parts, nor that he knew the Use of the real Nerves. He maintains, that the Nerves are not continued like the Veins, but that they are scattered here-and-there, and distributed to the Parts where the Articulations are; by which 'tis plain, that he still means the Tendons. If he had understood the Use of the Nerves, he had never asserted, in another Passage, that no Parts, but such as contain Blood, were capable of Sensation; and he would never have maintained, as he does, that the Flesh is the proper Organ of Sensation. As for Motion, if he ascribes it to the Nerves, it is evident, that the Nerves he means are also Tendons or Ligaments.

The common Principle of Motion and Sensation is, according to *Aristotle*, lodged in the Heart; which he makes to be the Principle of Nourishment to the whole Body, by the Blood which it sends to all its Parts. It contains the natural Fire, is the Seat of the Passions, the Point, as it were, in which all the Sensations terminate as in a common Centre, and the true Seat of the Soul; and all this, not because the Nerves draw their Origin from it, as one might be induced to think by what has been said, but because the Heart is the Reservoir, or Store-house, of the Blood and Spirits. *Aristotle* even maintains, in plain Terms, that the Spirits cannot be contained in the Nerves.

But if he ascribed so noble Uses to the Heart, he imagined, that the Brain was only a Mass of Earth and Water, void of Blood, and destitute of Sensation. The Office of this cold Mass was, says he, to balance and correct the Heat of the Heart: But, besides his ascribing this Office elsewhere to the Lungs, he does not specify the Manner in which he imagined the Brain could answer this End. Tho' the Brain be placed immediately above the *Medulla Spinalis*, and is joined with it, yet *Aristotle* imagined, that this Marrow was quite a different Substance from that of the Brain, being only a Species of Blood prepared for the Nourishment of the Bones, and consequently hot; whereas the Brain was, in his Opinion, very cold. Besides, he thought the Brain of so little Importance, as to place it only next in Rank to the Excrements; and imagined, that it ought not to be rank'd among the Parts of the Body, which are united and connected with one another; but that it ought to be look'd upon

as a Substance of a particular Nature, quite different from all the rest of the Parts.

With regard to the other Viscera, such as the Liver, the Spleen, and the Kidneys, he imagined, their chief and principal Use was to support the Veins, which, without them, would be loose and pendent, and to fix them in their proper Places. Besides this general Use, he assigned some particular one to each of them. The Liver, for Instance, assists the Concoction of the Aliment in the Stomach and Intestines, by the Heat which it communicates to these Parts. The Spleen is not of so great Use; it is only, in our Philosopher's Opinion, accidentally necessary to collect, prepare, and give a different Direction to the moist Vapours which rise from the Belly; and hence those Animals, in which these Vapours take a different Course, have only very small Spleens. Of this Class are Fowls and Fishes, whose Feathers and Scales are nourished by this Humidity; and for this very Reason, says he, these Animals have neither Kidneys nor Bladder. The Kidneys also are, according to him, only designed for a Piece of Convenience; since their Office is to imbibe a Part of the Excrement, which is carried to the Bladders of these Animals, in which it abounds too much, that the Bladder may be eased of a Part of its Burden. He adds, a little after, that the Humours filtrate themselves, or flow thro' the Substance of the Kidneys; in which, indeed, he has come somewhat nearer to the Use generally ascribed to these Parts; but he talks at the same time very obscurely on the Point.

The Testicles are also, according to him, Parts form'd by Nature for Convenience; but are not absolutely necessary. He also affirmed, that two Veins came from the Aorta, and were inserted into the Testicles; and that two other Veins came to them from the Kidneys; and that these latter Veins contained Blood, but the former none. That there came from the Head of each Testicle, or, at least, from some one of its Extremities, another larger and more nervous Canal, which, bending itself, and lessening by degrees, ascends to the two others; and, being wrapt up in a Membrane, terminates at the Root of the Penis. He adds, that this last Canal contains no Blood, but a white Liquor; and that terminating at the Penis, or towards the Neck of the Bladder, it there finds an Opening, which leads to the Penis; about which Opening there is a kind of Husk *δεν Κέλυσθι*, or Bark.

Taking this for granted, he maintained, that when the Testicles were cut from any Animal, all the above-mention'd Canals shrivel'd up; and that it was for this Reason that castrated Animals could not, for the future, propagate their Species. For a Proof of this, he adduces an Instance of a Cow, which conceived after Copulation with a Bull immediately after his Castration, and before the Seminal Vessels had shrivel'd up. In another Passage he explains himself still more particularly, with regard to the Use of the Testicles, when he maintains, that they are no Part of the Canals or Reservoirs of the Seed, and that they have nothing in common with them; but that they only serve as a Counter-poise to draw them downwards, and to retard the Motion of the Seed, almost in the same manner with those Stones which Weavers tie to their Webs. He advanced farther, as a Proof of the Uselessness of the Testicles, with regard to Generation, the Instances of Fishes, and Serpents, which being, to all Appearance, deprived of these Parts, did nevertheless propagate their Species.

He also thought, that Conception was occasioned by a Mixture of the Male Seed with the Menstrual Blood, in the Matrix; and ascribed no other Part in Generation to the Female Seed, which, according to him, was only the Excrement of the Matrix, which some Females discharged, and some not; and that these last were not, on that Account, less fit for Generation, or more deprived of the Sensation of venereal Enjoyments, since it proceeded from the Afflux of Spirits to the Parts of Generation.

As to the Place where the Concoction of the Aliments was perform'd, and the Manner in which it was brought about, he imagined, that the Aliments were first prepared in the Mouth of such Animals as used any kind of Food, which stood in need of Mastication. But we must not imagine, that, in that Place, any sort of Concoction is made; the Food is only reduced into small Parts, that it may the more easily be prepared and penetrated, after it has descended into the Stomach, and lower Belly, which are both designed for the Preparation of the Aliments; and as the Mouth is the Opening at which the unprepared Aliments enter, and the Oesophagus the Duct by which it is convey'd to the Stomach, there must, in like manner, be other Openings, by means of which, all the Parts of the Body receive the Degrees of Nourishment of which they stand in need: These last Openings are the Mesenteric Veins, which draw what is necessary for them from the Stomach and Intestines, in the same manner as Horses draw Hay from a Rack.

*Aristotle* imagined also, that as Plants received their Nourishment from their Roots, which were spread in the Earth, so Animals



Animals received theirs by the Mesenteric Veins, which may be compared to so many Roots, designed for drawing the Juice from the Stomach and Intestines; these last Parts being, with regard to Animals, what the Earth is in respect of Plants. I must also observe, with regard to the Anatomy of *Aristotle*; that he himself never dissected any thing but Beasts, and that in his Days they had not ventured on the Dissection of human Subjects. This he himself seems to insinuate, when he says, *That the internal Parts of Man's Body are unknown, or that we have nothing certain relating to them; but that we must judge of them by the Resemblance they bear to those of other Animals which correspond to them.*

By these Sketches of the Anatomy of *Aristotle*, we may form a Judgment of his Knowledge in this Science, and conclude, that he knew very little, or nothing, of the true Uses of the Parts. It must, however, be remarked, that he mentions the Intestine *Jejunum*; and distinguishes the *Colon*, *Cæcum*, and *Rectum*; whereas *Hippocrates* only takes Notice of the *Colon* and *Rectum*.

*Le Clerc* gives some more Particulars relating to the Anatomy of *Aristotle*, which may be consulted by the Curious; but it will give no great Information to Anatomists.

*Diocles Caryllus* is said to have lived some little Time after *Aristotle*, that is, under the Reign of *Antigonus*. *Galen* informs us, that he was the first who wrote upon the Method of dissecting Bodies; this Art, before his Days, being confin'd to private Families, and only taught to the Children and Pupils of those who possess'd the Secret: But the same Author tells us, that *Diocles* made no great Advances in Anatomy.

But much greater Progresses were made in this Science by *Herophilus* and *Erasistratus*. *Herophilus* is said to have lived during the Reign of *Ptolemy Soter*, and to have been born at *Carthage*.

*Herophilus* and *Erasistratus* are reported to have had this in common, that both of them dissected living Subjects. Of the former, *Tertullian* talks in this manner: *Herophilus, that Physician, or rather Butcher, who dissected six hundred Men, in order to find out Nature; who bated Man, in order to know the Construction of his Body, could not, by that means, come to a more perfect Knowledge of his internal Parts, since Death induces a great Change on all the Parts, as they are not the same after Death that they were before, especially since they did not die a natural Death, but under all the Agonies to which the Curiosity of the Anatomist was pleased to subject them.*

The Fact may possibly be true; the Possibility of it is not to be disputed, since, in these Days, we meet with Instances of the like Inhumanity. But may we not suspect, that since *Herophilus* and *Erasistratus* were the first who dissected human Bodies, the Novelty of the Attempt forcibly struck the Minds of the Vulgar, and laid a Foundation for groundless Exaggerations, and a Publication of more than was really Truth? a thing very common upon Occasions of a like Nature; witness the Story of *Medea*, who was branded with the Inhumanity of boiling Men alive, for no other Reason but because she invented warm Baths: And who, to this very Day, can persuade the Vulgar, but the Pupils of Anatomical Schools secretly convey off People, in order to dissect them?

'Tis, however, certain, that *Herophilus* and *Erasistratus* had really dissected many human Bodies. This last speaks, in a Fragment of his Anatomical Works, of the Brain of a Man whom he had dissected; and of *Herophilus*, *Galen* talks in this manner (*de Diss. Vulvæ*, Cap. 5.): *He was, says he, an accomplished Man in all the Branches of Physic; but he was particularly knowing in Anatomy, which he had learned not, by the Dissection of Beasts alone, as Physicians usually do, but principally by the Dissection of Men.*

The same *Galen* observes, (*Administrat. Anatomic. Lib. 7. Cap. 5.*) that it was at *Alexandria*, the Capital of *Egypt*, where *Herophilus* made his Dissections; which renders it probable, that it was owing to the Curiosity of the Kings, and their Inclination to encourage the Arts, that these two Physicians had the Liberty granted them of instructing themselves by dissecting human Bodies: A Liberty which those of succeeding Times very rarely enjoy'd for many Ages, whether thro' a Defect of Kings of equal Courage and Learning with the first *Ptolemies*, or thro' the scrupulous Disposition of the People passing to the Sovereigns, or getting the better of their Authority. I am not ignorant, that *Riolanus* has maintained, in Opposition to this, that they not only dissected Men before this Time, but that this Practice was even continued down to the very Days of *Galen*. He also maintained, that *Aristotle* practised the same kind of Dissection; but this learned Anatomist proves no more, than that *Aristotle* really dissected Animals, and composed some Books of Anatomy, to which he often refers his Readers. This cannot be denied; but that he dissected Men, cannot be proved, since we find *Aristotle* himself confessing, that he never dissected any thing but Beasts.

This Anatomist succeeds no better, when he attempts to prove, that *Hippocrates* had dissected human Bodies; but his Arguments for this will, upon an impartial Review, be found

so weak and inconclusive, that we may safely infer, that *Herophilus* and *Erasistratus* were the first who were known to dissect human Bodies.

As for *Herophilus*, one of the principal Proofs of his Accuracy is this, that he addicted himself to those Parts of Anatomy which had not before been touched upon. Neurology, or the Dissection of the Nerves, was in his Days a Part of Anatomy; not as yet well known. *Galen* informs us, that *Herophilus* was the first after *Hippocrates*, who handled this Matter with Accuracy; but he shares the Praise, due to him in this respect, with another Physician, *Eudemus*. As for *Hippocrates*, who likewise comes into the Account upon this Occasion, *Galen*, being resolved to extol him above all the antient Physicians, honours him with a Degree of Knowledge in this respect, which his Writings no-where discover.

It is very probable, that *Herophilus* was the first who was known to discover the Nerves, properly so called, and who knew how to demonstrate them. According to *Rufus Ephesius*, he divided the Nerves into three Kinds. The first he called *Ἀσθητικά καὶ τεταρσινικά νεῦρα*, or those Nerves which are the immediate Instruments of Sensation, and the Ministers of the Will. These, according to him, derived their Origin from the Brain, from which they rose like so many Branches, and were a Part of the Medulla Spinalis. The second proceeded from some of the Bones, and terminated at others of them. The third arose from some of the Muscles, and terminated at others. By this we see, that *Herophilus* gave the Name of Nerves to those Parts, which were afterwards called Ligaments and Tendons; but 'tis a Matter of little Moment, what Names Things receive, provided they be sufficiently distinguished. In Reality, this Distinction of three Sorts of Nerves, ascribed to this antient Anatomist, is a Proof, that no such Distinction was made before his Time, and that these Parts were confounded with one another. The Writings of *Herophilus* being lost, we know no more of his Sentiments, with regard to the true Nerves, but that he gave the Name of Optic Pores to those Nerves which reach to the Bottom of the Eye, and which now are called Optic Nerves; and maintain'd, that they had a sensible Cavity, which was not to be met with in other Nerves.

There is nothing remarkable with respect to his Notions of the Uses of the Brain, except that we are told, he imagined the reasonable Soul was lodged in its Ventricles.

But one of his principal Discoveries, which, though look'd upon to be the Product of our own Age, is nevertheless very antient, is, his finding certain Veins in the Mesentery, which according to him, were destin'd to nourish the Intestines, which do not, like the other Veins, go to the Vena Portæ, but terminate in certain glandular Bodies. *Erasistratus* likewise discovered something of this Nature.

Besides, as *Herophilus* had learned Anatomy, not by reading the Books of his Predecessors only, and form'd particular Ideas of the Parts, from what he had seen in Dissections, especially those of human Bodies, he expressed these Ideas by Words, which appeared to him most proper for that Purpose; that is, he invented new Names, and gave Names to Parts, which before had none.

For Instance, he called the first of the Intestines, or that which is next to the Stomach, *Δωδεκάδ ἀκτύλον*, because it is twelve Inches in Length.

Having also observed, that the Vessel which passes from the right Ventricle of the Heart to the Lungs, and which he took for a Vein, had a thick Coat like that of an Artery, he called it, if we may believe *Rufus Ephesius*, the Arterial Vein; and for the quite contrary Reason, he called the Vessel which comes from the Lungs to the Left Ventricle of the Heart, the Venous Artery. But though the Names he gave to those Vessels, point out the Knowledge he had of the Heart, and the Vessels with which it is immediately connected, yet *Galen* (*De Hippocrat. & Platon. Decret. Lib. 1. Cap. 10.*) observes, that he has been very negligent in describing the Membranes of the Heart, to which he had nevertheless given a Name, calling them *Nervous Separations*, or *Partitions*.

It was also *Herophilus* who first called two Coats of the Eye, the *Tunica Retina*, and the *Tunica Arachnoides*. He also called that Membrane which lines the Ventricle of the Brain, the *Membrana Choroides*, because he saw, that it resembled the Chorion which covers the Fœtus in the Matrix.

He also compared the Cavity, which forms the fourth Ventricle of the Brain, *Ἀνὰ πρὸς τὸ καλάραν*, to the Concavity of a writing Pen, or Reed, used for that Purpose in *Egypt*. He has in like manner given the Name of *Ἀνός*, *Torcular*, to that Place where all the Sinuses of the Dura Mater unite.

It was he likewise who gave the Name of *Glandule Parastatæ* to those Glands which lie about the Root of the Penis.

He styl'd these *Parastatæ glandulæ*, in order to distinguish them from other *Parastatæ*, which he called *Laricose*, and which he placed at the Extremity of those Vessels which convey the Seed from the Testicles, or rather, as he thought, which serve to prepare it; for though he did not deny, that the Testicles served, in some measure, to the Generation of Seed, yet he



he believed, that the above-mentioned Vessels contributed much more to that Purpose. The Word *Paraſtata* imports any thing ſituated near another. Some antient Phyſicians have alſo given the Name of *Paraſtata* to the Epididymis. It is plain, that *Hippocrates* and *Aristotle* knew the Varicoſe Paraſtatae of *Herophilus*, though they did not give them the ſame Name.

The Authority of *Herophilus*, in point of Anatomy, was ſo great, that almoſt all the Names he aſſign'd to the different Parts, are ſtill preſerved. The Teſtimony of Antiquity is ſo ſtrong in the Favour of *Herophilus*, that we cannot, without injuring his Character, deny him to be the beſt Anatomist of the Times in which he lived. If his Writings had reached our Hands, we might have been able to have judged of his Sentiments for ourſelves. But as they are loſt, we can ſay no more, than that what is preſerved in Quotations is ſufficient to give us a great Idea of his Exaſtneſs and his Skill, eſpecially if we conſider, that he lived at a time when Anatomy was only in its Infancy, and that his whole Stock of Knowledge, in this Particular, was principally of his own acquiring. *Fallopius*, a knowing Anatomist of the laſt Age, was ſo ſuperſtitious an Admirer of *Herophilus*, that he laid it down as a Maxim, that it was as unreaſonable to contradict him in point of Anatomy, as to contradict the Goſpel; but the Encomium is a little too extravagant.

It is generally thought, that *Eraſiſtratus* was contemporary with *Herophilus*, or liv'd very ſoon after him.

It was by means of Anatomy, that this Phyſician firſt became conſiderable in the World; and *Galen*, who upon many Occaſions talks unfavourably enough of him, yet confeſſes that *Eraſiſtratus* had contributed a great deal to the Re-eſta bliſhment of Anatomy, which, as he ſays, had been in a great meaſure loſt for ſome time before. But 'tis no eaſy Matter to find out what particular Period of Time he has in View: However, that we may underſtand the Paſſage the better, it is neceſſary to relate the Whole of it. *Thoſe*, ſays he, *who are not aſham'd to ſpeak againſt Evidence, are the Cauſe of the Length of this Diſpute* [the Diſpute betwixt him and *Chryſippus* the Stoic, who maintain'd, that the Seat of the Soul, and the Origin of the Nerves, was in the Heart]. *We ought not to accuſe either Hippocrates, or Eudemus, or Herophilus, or Marinus, who ſince the Days of the Antients have re-eſta bliſhed the Science of Anatomy, which had been neglected* *επ' αἰῶνι χρόνῳ*, *in the intermediate Space of Time between them.*

*Galen* at firſt ſeems to hint at the Time which paſſed between *Eſculapius*, or his firſt Deſcendants, and *Hippocrates*; which is that dark Period, during which, the State of Phyſic was not known. But we ſhall ſee by what he ſays elſewhere, that he meant no ſuch thing. In order then to prevent the Contradiſtion betwixt the Paſſage now quoted, and ſome others of the ſame Author, we muſt neceſſarily put a Point after the Word *Hippocrates*, and begin another Period thus: *We ought not to lay the Blame upon Hippocrates. Neither ought we to accuſe Eraſiſtratus, nor Eudemus, nor Herophilus, nor Marinus, who after the Antients have re-eſta bliſhed the Science of Anatomy, which had been neglected in the Time intervening between them.* Or this Sentence of *Galen* may be tranſlated thus: *We ought neither to accuſe Hippocrates, nor thoſe who have re-eſta bliſhed Anatomy, which had been neglected in the Interval between them and him, ſuch as Eraſiſtratus, Eudemus, Herophilus, &c.* According to this Explication, which is the genuine Senſe of *Galen*, *Hippocrates* will not be rank'd among the Reſtorers of Anatomy, which would not agree with what the ſame Author ſays in another Paſſage, [*De Adminiſtr. Anatom. Lib. 2. Cap. 1.*] “That  
“ the antient Phyſicians, and even the antient Philoſophers,  
“ were very much addicted to the Study of Anatomy, and  
“ that in theſe Days Fathers not only train'd up their Children  
“ in it, by obliging them to read and write upon the Subjects,  
“ but alſo by making them diſſect Subjects themſelves; ſo that  
“ having learned the thing from their Infancy, it was impoſſi-  
“ ble they ſhould forget it. But, continues he, it was not ſo  
“ afterwards, when Phyſic came to be out of the Hands of  
“ the *Aſchypiadean* Family, and when Phyſicians began to teach  
“ their Art to Strangers, eſpecially to Men advanced in Years,  
“ for whom they had an Eſteem, and whom they revered  
“ on account of their Virtue. Theſe Men, not being young  
“ enough to labour at Anatomy with Succeſs themſelves, or  
“ to inform themſelves of the Parts of the Body by their own  
“ Sight, and by putting their Hands to the Work, could only  
“ learn Anatomy very imperfectly. Hence it was, that, in  
“ Proceſs of Time, the neceſſary Inſtructions in this Branch  
“ of Learning paſſing often from one hand to another, Ana-  
“ tomy grew ſtill worſe and worſe.”

Thus *Galen* ſuppoſes, that Anatomy was in a flouriſhing State whilſt Phyſic was confin'd to the *Aſchypiadean* Family; he even fixes, in expreſs Terms, the Beginning of its Declenſion, at the particular Time when Phyſic began to be praſtiſed by others, than thoſe of that Family. Now we are no-where inform'd, that Phyſic was praſtiſed out of this Family, till the Philoſophers began to encroach upon the Art, or, at leaſt, till *Hippocrates* began to teach Diſciples, as *Galen* elſewhere obſerves.

As this is the Caſe, it is ſcarce to be believ'd, that the Philoſophers were the Cauſe of the Decay of Anatomy, ſince it was their Intereſt to carry it to its Perfection, even though they had not had the Intereſt of Phyſic in View. *Galen* himſelf does not think, that this was the Caſe, ſince he joins the Philoſophers and Phyſicians together, when he ſpeaks of the Time wherein Anatomy was in its Perfection; and by the Philoſophers, he undoubtedly meant *Democritus*, and others who preceded *Hippocrates*. So that the Time ſpoke of, muſt be that which followed the Death of *Hippocrates*.

But there is a conſiderable Difficulty in this Point; for if *Hippocrates* was ſo ſkilful an Anatomist as *Galen* repreſents him, who can poſſibly believe, that his Knowledge in this Particular ſhould have been ſo ſoon loſt, or raſed from the Memories of Men, that *Diocles*, *Praxagoras*, and the other Phyſicians of their Time, were ſo little improved by his Discoveries, or the Traditions of them, that *Galen* has with Juſtice ſtyled them [*De Diſſect. Vulvæ, Cap. 9.*] unſkilful Anatomists? Before this could happen, a great Time muſt have intervened between *Hippocrates*, and theſe Phyſicians. But where ſhall we find all theſe Succeſſions, or that great Number of Generations, ſince all the Authors agree, that *Diocles* followed not long after *Hippocrates*; ſo that he muſt have been contemporary with *Plato*? As this is the Caſe, if he did not ſee *Hippocrates* himſelf, he muſt, at leaſt, have ſeen his Sons, or his Son-in-law, who may reaſonably be preſumed to inherit the Knowledge of their Father, in point of Anatomy, as well as of the other Branches of Phyſic. And as for *Praxagoras*, who lived almoſt in the ſame Time with *Diocles*, though he had not had an Opportunity of inſtructing himſelf in the ſame way, that is, by the Traditions of *Hippocrates* and his Diſciples, yet, according to *Galen* himſelf, he was one of the Deſcendants of *Eſculapius*, the Children of whoſe Family were train'd up to Anatomy from their Infancy; ſo that, in this reſpect, *Hippocrates* could enjoy no greater Advantages than he. *Galen* would not have involved himſelf in this Difficulty, if he had not been unreaſonably prepoſſeſs'd in favour of the *Aſchypiadean* Family, as may be eaſily ſeen by his Works.

It is certain, that *Eraſiſtratus* and *Herophilus* carried Anatomy to a higher Pitch of Perfection. But *Galen*, who look'd upon the former of theſe as the Rival of *Hippocrates*, was unwilling to confeſs this, but declares all along in favour of the latter.

It is alſo certain, that before *Eraſiſtratus* and *Herophilus*, Anatomists had never ventured to diſſect human Bodies; and that in the Times of *Aristotle*, who lived not long before theſe two Phyſicians, they had only diſſected Beaſts. It muſt be own'd, that in *Egypt* they had long before a Cuſtom of embalming their dead Bodies, which could not be done without opening them; and *Galen* himſelf confeſſes, that this Cuſtom might have furniſhed the Phyſicians of that Country with a favourable Opportunity of inſtructing themſelves.

But as it is not probable, that thoſe Perſons who were employ'd in Embalming, durſt ſatisfy their Curioſity entirely, and ſearch as narrowly as was neceſſary into the human Body, which was look'd upon as ſomething ſacred, Anatomy could not poſſibly arrive at any conſiderable Pitch of Perfection, whilſt no other Means were employ'd in its Cultivation. Carcaſes, upon which every thing might be attempted, were abſolutely neceſſary for that Purpose. Theſe were probably firſt granted in Conſequence of the Inclination which the Kings of theſe Times had to advance the Arts and Sciences. *Alexander the Great* firſt began to patronize thoſe who apply'd themſelves to Natural Hiſtory, by ordering *Aristotle* to labour at that of Animals, and their ſeveral Parts; and without Doubt, *Ptolemy Soter*, or *Ptolemy* the Son of *Lagus*, ſucceeded *Alexander*, as well with regard to this Inclination, as with regard to that Part of his Empire, which fell to his Share. This appears ſtill the more probable, if we conſider, that *Ptolemy* was a Man of Learning, and wrote himſelf a Hiſtory of *Alexander*, as we learn from *Arrian*. *Ptolemy Philadelphus*, Son of the preceding *Ptolemy*, was no leſs induſtrious in promoting Arts and Sciences; ſince he invited to his Capital all the learned Men of his Time, and collected, at an extraordinary Expence, a Library of Books from all Parts of the World, in order to form a Library, which was ſtill augmented by his Succeſſors.

It is probable, that theſe two Kings, getting over the Scruple which had till then reign'd, of diſſecting human Bodies, not only granted the Phyſicians the Bodies of Criminals after their Death, but, if we may give Credit to ſome Authors, put into their Hands many of theſe wretched Creatures, to be diſſected, imagining, that they might by that means diſcover things, which otherwiſe they could not do. *Herophilus* and *Eraſiſtratus*, ſays *Celſus*, *have diſſected living Criminals, condemn'd to Death, and dragg'd from their Priſons by the Order of their Kings, for that very Purpose.*

Which ever of theſe two Princes *Eraſiſtratus* lived under, 'tis probable, that he laid hold of this favourable Opportunity, and made thoſe Discoveries in Anatomy which gain'd him ſo high a Reputation. But as his Writings have not reached us,



we know no more of his Sentiments than what are transmitted to us by *Galen*, who generally quotes him with no other View but to refute him.

The principal of *Erasistratus's* Discoveries, which, by the way, was not made upon human Bodies, but which at the same time acquir'd him abundance of Honour, was his finding out [*Galen. an Sanguis sit Naturâ in Arteriis, Cap. 5. & Administrat. Anatom. Lib. 7. Cap. ultim.*] certain white Vessels in the Mesentery of sucking Kids, which he believed to be Arteries. He added, *That these Vessels seem'd at first to be full of Air, and afterwards of Chyle.*

*Erasistratus* and *Herophilus* were the first who knew the true and genuine Use of the Brain and Nerves, or, at least, the Uses ascribed to them by all succeeding Anatomists. *Rufus Ephesus* says, that *Erasistratus* owned two Sorts of Nerves, those which are the Instruments of Sensation, and those that are the Instruments of Motion. He maintained, according to *Galen*, that the former were hollow, and drew their Origin from the Membranes of the Brain, whereas the other sprung from the Brain itself, and the Cerebellum. But *Galen* [*De Hippocrat. & Platon. Decret. Lib. 7. Cap. 3.*] informs us, that *Erasistratus*, having inquir'd more accurately into the Matter, was at last convinced, that all the Nerves proceed equally from the Brain. This may be gathered from a Passage of this ancient Anatomist, related by *Galen*, the Whole of which I shall translate, that we may see what Notions he entertain'd with respect to the Brain, the Cerebellum, the Nerves, and all the several Parts connected with each of them. "We examined, says *Erasistratus*, what the Nature of the human Brain was, and we found it divided into two Parts, as it is in all other Animals. It had a Ventricle or Cavity of a longitudinal Form. [*Here there seems to be a Chasm, or Defect in the Text*] These Ventricles had a Communication with one another, and terminated in a common Opening, according to the Contiguity of their Parts, reaching afterwards to the Cerebellum, where there was also a small Cavity. But each Part was separated from the other, and shut up in its proper Membranes, and the Cerebellum in particular was wrapt up by itself, as well as the Brain, which by its various Windings and Turnings, resembled the Intestinum Jejunum. The Cerebellum was in like manner folded and twisted different ways, so that it was easy to know by seeing it, that as in the Legs of swift-running Animals, such as the Hart, the Hare, and some others, we observe Tendons and Muscles well calculated for that Purpose; so in Man, who has a larger Share of Understanding than other Animals, this great Variety and Multiplicity of Foldings in the human Brain, was undoubtedly design'd for some particular End. Besides, we observ'd, continues *Erasistratus*, all the Apophyses or Productions of the Nerves which come from the Brain; so that, to say all at once, the Brain is visibly the Principle of every thing that passes in the Body; for the Sense of Smelling proceeds from the Nostriis, being pierced in order to have a Communication with the Nerves. The Sense of Hearing is also produced by the like Communication of Nerves with the Ears. The Tongue and the Eyes receive also the Productions of the Nerves of the Brain."

Here we see, by the Confession of *Erasistratus* himself, that he had dissected Men. *Erasistratus* had also very accurately described, in *Galen's* Opinion, [*De Hippocrat. & Platon. Decret. Lib. 1. Cap. 10. & Lib. 6. Cap. 6.*] the Membranes which are found at the Orifices of the Heart; and he maintain'd with *Aristotle*, that the Veins and Arteries drew their Origin from it. *There are*, says he, *certain Membranes inserted in the Orifices of the Vessels of the Heart, of which the Heart makes use, either for the Reception or the Expulsion of such Substances, as either enter into it, or come out of it.* Some, adds *Galen*, have been so rash as to deny, that there were such Membranes, and have look'd upon them as Fictions of *Erasistratus*, or a kind of Hypothesis invented to support his own System: But these Membranes are so well known by Anatomists, that none but Novices in the Art are ignorant of them. *There are*, continues *Galen*, three of these Membranes at the Orifice of the Vena Cava, which resemble the Points of Arrows; whence some of the Disciples of *Erasistratus* have called them *τεγλῶχιδες*, *Tricuspides*. *There are also at the Orifice of the Arteria Venosa* (for so I call that Artery, which rising from the left Ventricle, disperses itself in the Lungs) *Membranes of a like Form, but of different Names; for that Orifice has only two Membranes.* The other two Orifices, I mean, that of the Vena Arteriosa, and that of the Arteria Magna, have also each of them three Membranes, resembling the Sigma of the *Greeks*, which resembled our C. Here *Galen*, ceasing himself to speak, again introduces *Erasistratus*, saying, "That these two last Orifices are equally disposed to convey any thing from the Heart; that thro' the former the Blood flows to the Lungs, and thro' the latter the Spirits, in order to be distributed thro' the whole Body. [*Here some part of the Greek Text seems to be wanting*] Thus it happens, continues *Erasistratus*, that these Membranes alternately perform opposite Offices to the Heart,

"Those which are adherent to the Vessels, by which Substances are carried into the Heart, bend inwards, that they may yield to the Impetuosity of such things as are carried towards them, and, lying in the very Cavities of the Heart, may open its Entry for the Introduction of such Substances as are attracted to it; for we have no Reason to imagine, that such Substances enter the Heart of their own Accord, as if it were an inanimate Receptacle; but the Heart, by its Diastole or Dilatation, draws them to it, as the Blacksmith's Bellows does the Air; and in this manner the Heart is fill'd. The Membranes of those Vessels, on the other hand, which serve to convey things from the Heart, are quite differently disposed and situated; so that yielding easily to the Substances coming from the Heart, they open their Orifices at the time it thrusts out such Substances; whereas at other times they shut up these Orifices, and allow nothing to return which is once thrust out, just as the Membranes of the Vessels, which serve to introduce things into the Heart, shut the Orifices of these Vessels upon the Heart's contracting itself, and allow nothing to be carried out which is once thrown in."

It were to be wish'd, that *Galen* had left us more Fragments of *Erasistratus*, of the same Nature with these two.

Besides, what he elsewhere says, that *some thought the Membranes of the Heart a Fiction of Erasistratus*, is a sure Proof, that the Book *De Corde*, ascribed to *Hippocrates*, was not really wrote by him, since in it these Membranes are made Mention of. If this Book had been wrote by the Author whose Name it bears, *Galen* would not have fail'd to take Notice of it, for his Honour, and in order to stop the Mouths of those who thought, that these Membranes were an Invention of *Erasistratus*. He had nothing to do but to let these People see, that *Hippocrates* had wrote before on the same Subject.

But 'tis surprising, that this same *Erasistratus*, who had so accurately examined the Heart, and dissected so many living Animals, should yet embrace an Opinion, with regard to the Arteries, which all other Anatomists have look'd upon as absurd. He affirm'd, as did *Praxagoras* before him, [*Galen. an Sanguis sit Naturâ in Arteriis*] that in a natural State, the Arteries contained no Blood, and that they, as well as the left Ventricle of the Heart, were only filled with Air. It was an easy matter to give him the Testimony of his own Eyes for his Error; but he had recourse to the self-same refuge [*Galen. an Sanguis sit Natura in Arteriis, & Platon. Decret. Lib. 1. Cap. 6. & de Venâ Sect. adv. Erasistratum, Cap. 3.*]: *As soon*, said he, *as we open the left Ventricle of the Heart, that Air or Spirit is evaporated before we can observe it, and the Ventricle is instantly filled with Blood.* He asserted the same thing with regard to the Arteries.

What engaged him to entertain this Opinion, with regard to the Arteries, was, as *Galen* informs us, *because he could not conceive how there should be two Kinds of Vessels destin'd for the Conveyance of the same Liquor*, that is, why both the Veins and Arteries should contain and convey the Blood. If he had known the Secret of the Blood's Circulation, which some learned Men imagine is plainly found in the Writings of *Hippocrates*, he had not been so much puzzled and perplexed with regard to this Point; he might even have inform'd himself of it, by the Knowledge he had of the Membranes or Valves of the Heart, if he had not been mistaken with regard to one of them. What follows, will illustrate this Anatomist's Opinion, and at the same time inform us what his Sentiments were, with regard to the Causes of Diseases.

*Galen, de Venâ Sect. advers. Erasistratum*, says, that *Erasistratus* maintain'd, "That the great Vein was the Reservoir of the Blood, and the great Artery that of the Spirits." He added, "That after these Reservoirs had divided themselves into many Branches, they became smaller, and their Number greater; and that as there is no Place in all the Body where any of these Branches terminate, that has not a smaller Branch which receives what was brought to it by the larger; so it happens, that before these Vessels arrive at the Surface of the Body, they divide themselves into Branches so small and minute, that the Blood they contain cannot pass through them; so that, adds our Author, though the Mouths of the Arteries and Veins be very near each other, yet the Blood keeps itself within its proper Bounds, without entering the Vessels in which the Spirits flow; and in this Case, the Animal remains in its natural State. But when any violent Cause happens to disturb this Oeconomy, the Blood forces itself into the Arteries, and proves the Source of Disorders. Among the Causes now mentioned, too great a Quantity of Blood is the principal; for in that Case, the Coats of the Veins are dilated more than ordinarily, and their Extremities, which were formerly shut up, are open'd; whence follows a Transfusion of the Blood from the Vein into the Arteries. And this Blood, by its Irruption, opposing the Course and Motion of the Spirits, which come from the Heart, if this Opposition is direct and immediate, or if the Blood stops in a principal Part, this causes a Fever; but



“ if the Spirits should happen to drive it backwards, so that it  
 “ does not pass the Extremity of the Artery, in that Case,  
 “ an Inflammation of the Part is only produced. As to the  
 “ Inflammation and Fever which happen in Wounds, they  
 “ are also occasioned by the sudden Evacuation of Spirits,  
 “ which is the Consequence of the cutting of the Artery, and  
 “ forces the Blood continually into the Place of the Spirits,  
 “ lest there should be a Vacuum.”

*Erasistratus* made use of this Comparison to support his System. [*Galen. Histor. Philosoph. Plutarch. Celsus.*] As the Sea, says he, which remains in a Calm, when she is not ruffled by Winds, swells in an extraordinary manner, and overflows her Shores, when the Winds blow hard, so the Blood, moving in the Body, departs from its ordinary Canals, and enters into the Reservoirs of the Spirits, where it afterwards becomes warm, and puts all the Body, as it were, on a Fire.

These are the Notions which *Erasistratus* entertained with regard to the Causes of Diseases in general, which at the same time are very different from those attributed to him by the Author of a Treatise ascribed to *Galen*, intitled, *The Introduction*; who assures us, that this Physician did not search for the Causes of Diseases in the Humours, or the Spirits, but in the solid Parts; whereas *Hippocrates* look'd upon these three Substances as the Causes of Health and Diseases. I think, that Author only means, that *Erasistratus* did not admit of the different Humours mentioned by *Hippocrates*, or, at least, seem'd to think them of so little Importance, as not to ascribe the Causes of Diseases to them. This is what *Galen* himself confirms; but he asserts at the same time, that though *Erasistratus* overlook'd and neglected the Humours, he was nevertheless obliged to speak of them on some Occasions, as for Instance, [*De atra Bile*]; when he says, that a Palsy proceeds from the Humour, which nourishes the Nerves, being stopped on account of its too great Viscidity. And when he talks of the Bile and black Urine.

With regard to Respiration, [*Galen. de usu Respirat. Cap. 1.*] he maintain'd, that it was only useful to Animals by filling their Arteries with Air, which is a Consequence of his former Hypothesis; and he imagin'd, that the thing was done in this manner: When the Thorax, [*Galen. de usu Respirat. & de Locis Affet.*] or the Breast, dilates itself, the Lungs are also dilated, and filled with Air. This Air passes to the very Extremities of the Aspera Arteria, and from them to those of the smooth Arteries of the Lungs, from which the Heart draws it when it dilates itself, to carry it afterwards through all the Parts of the Body, by means of the great Artery. When it was objected to him, that the Heart moved in its ordinary manner, when a Person retains his Breath, he answered, That, upon that Occasion, the Heart drew Air from the great Artery. To this it was reply'd, That the Membranes which adhere to the Orifice of this Artery, will not so much as allow it to return from it to the Heart. But he thought to extricate himself by saying, That though this was the Case in a natural State, yet it did not follow, that it must be so during the Time a Person retains his Breath, which is a State of Violence, and consequently cannot last very long.

*Erasistratus* also entertained a very singular Opinion, with regard to the Manner in which the Aliments were prepared in the Stomach. He thought, that the Stomach contracts itself, that it may the more closely embrace the Food, and break its Texture; that Trituration corresponding, according to him, to the Concoction of which *Hippocrates* speaks. And with regard to the Chyle, that is, the Juice of the Aliments extracted in the Stomach, he maintain'd, [*Galen. de Facultat. Natur. Lib. 2. Cap. 9.*] that passing from the Stomach to the Liver, it arrived at a certain Place, where the Branches of the Vena Cava, and the Extremities of the Vessels, which are connected with the Reservoirs of the Bile, equally terminate; so that the Parts of the Bile insinuate themselves into the Orifices of these two Kinds of Vessels, according as these Orifices are disposed to receive them; that is, every thing of a bilious Quality in the Chyle, passes into the Canals connected with the Reservoir of the Bile, and the pure Blood passes into the Branches of the Vena Cava, and, taking another Course, is separated from the Bile. *Galen* [*De usu Part. Lib. 4. Cap. 13.*] makes *Erasistratus* say, that the Veins are divided in the Liver for the Separation of the Bile.

Besides, we must observe, [*Galen. de Facult. Natur. Lib. 2. Cap. 9. & de atra Bile, Cap. 5.*] that neither *Erasistratus*, nor his Successors, pretended to account for the Causes of certain Effects, Researches of which Kind they thought belonged more properly to the Philosophers than to the Physicians. Tho' they believed, for Instance, that the Stomach contracts itself for the embracing the Food the more closely, yet they were not at the Pains to enter into minute Explications of the particular Causes and Manner of this Contraction. Neither did they hesitate to own, that they were uncertain whether the Bile was produced in the Body, or if it was before contain'd in the Aliment.

Another Proof of the Ingenuity of *Erasistratus* we have in *Aulus Gellius*, [*Lib. 16. Cap. 3.*] who informs us, that he frankly own'd, when talking of unfatiable Hunger, or a *Boulimia*, (a Word not to be found in *Hippocrates*, but of which all the Greek Physicians after him have made use) that he did not know why this Disease happen'd rather during great Cold, than in hot Weather; tho' he imagin'd, that Hunger, in general, proceeded from the Stomach and Intestines being empty; and that a long and unpainful Abstinence was owing to the Stomach's being strongly contracted and shrivelled up. It was for this Reason, added he, that those who fast voluntarily feel Hunger towards the Beginning of their Course, but not after they have fasted for some time. He brought, in Support of his Opinion, the Example of the Scythians, [*Galen. de Natural. Facultat. Lib. 1. Cap. ult.*] who, when they were obliged to fast, swaddled themselves up with large Rowlers, with a View to contract or streighten their Stomachs.

*Erasistratus* own'd, that the Urine was separated in the Kidneys; but he did not acknowledge, with *Hippocrates*, that it was done by Attraction; for he entirely rejected this Sort of Attraction, tho' he no-where explains himself with regard to the Manner in which this Separation is made. Some of his first Followers believed, as *Galen* informs us, that the Parts above the Kidneys received only pure Blood; that what is aqueous, or charged with Serosities, tends downwards by its own Weight; and that after this Blood is separated from the aqueous and useless Part, it is carried to the Parts above the Reins, to nourish them.

It is also necessary to observe, that *Erasistratus* rectified *Plato* with regard to the Use of the Arteria Trachea, thro' which *Plato* imagined the Drink was carried, in order to water the Lungs (see *Aulus Gellius*, *Plutarch*, and *Macrobius*). This Opinion was common to *Plato*, with *Philistion*, *Hippocrates*, and the most of the Physicians of these Days.

*Lycus* and *Quintus* are also mentioned as two antient Anatomists, but nothing particular is known of their Discoveries.

*Marinus* is also mentioned, as an Author who wrote well on the Anatomy of the Muscles, after the Time of *Erasistratus*. *Galen* is said to have epitomiz'd his Works.

*Aurelius Cornelius Celsus* is also an Author of too distinguish'd Merit to be pass'd over in Silence. He was born at Rome, and, in all Probability, flourish'd under *Tiberius*, *Caligula*, *Claudius*, and *Nero*. Many things are found dispersed in his Writings, from which we may gather, that he rarely employ'd himself in Dissections; but that he had, at the same time, a very high Veneration for Anatomy.

Besides his Books *De re Medica*, he also wrote concerning the Figure and Situation of all the Bones of the human Body; which, indeed, is the principal Reason why he should not be overlook'd, upon an Occasion of this Nature.

His Sentiments, with respect to Anatomy, are specify'd in the Beginning of this Article.

*Caius Plinius Secundus* was, according to some, born in *Novocomum*; others will have him to be a Native of *Verona*; but, however this be, 'tis certain, that he lived under the Emperor *Vespasian*, about the Year 72. His Writings are interspersed with many curious Observations, relating both to the Anatomy of Men, and other Animals; but as he was no profess'd Anatomist, and never appears to have been exercised in Dissections, he took, and inserted in his Works, Truth and Fiction indiscriminately, as he met with them in the Writings of others.

Dr. *Wigan*, as well as all Authors who have mention'd the incomparable *Aretæus*, have been sensible of the Difficulty of fixing the Time in which he liv'd, but concludes it probable, that he wrote after the Beginning of *Nero's* Reign, and before that of *Domitian*. His Taste may be judg'd from this, that he thought a Knowledge of Anatomy so necessary, both for discovering the true Causes of Diseases, and the proper Methods of Cure, that in the Beginning almost of every Chapter he pre-mises something concerning the Structure of the Part affected. In this Instance he seems to have pursued the Steps of *Erasistratus* and *Herophilus*, who were the Chiefs of the Dogmatic Sect, and maintain'd, that without a Knowledge of Anatomy no one could possibly be a skilful Physician. So that *Aretæus*, tho' a concise and compendious Writer, has yet insisted upon this Branch of Medicine more copiously, and with more Accuracy, than any of the antient Physicians.

The Heart is, according to him, the Principle of Life and Strength, in which the Soul and Nature of Man reside in a particular manner. This was also the Doctrine of *Hippocrates*, and *Chrysippus* the Stoic. For this Reason a *Syncope*, as it is a Disease of the Heart, and consequently must have an immediate Influence upon Life, is unfriendly to the human Constitution, and in some measure dissolves and destroys that Connection by which the vital Faculty is maintained. He also asserted, that the Heart was a warm Part of the Body, and the Principle of Life and Respiration; that it is situated in the Middle of the Lungs; and that the Heart inspires the Lungs with a Desire of fresh Air, as it heated the Lungs, but that the Heart itself attracts it.



The Lungs were, according to him, naturally incapable of Pain, because they consisted of a loose sort of Substance resembling Wool. He also maintain'd; that rough cartilaginous Arteries, incapable of Pain, were distributed thro' them, and that they had no Muscles, but only some small and slender Nerves; by means of which their Motion was produced. And this, according to him, was the true Reason why in a *Peripneumony*, which is no more than an Inflammation of the Lungs, the Lungs themselves are insensible of Pain; and only a sort of Heaviness at the Breast, which is nevertheless free from Pain, afflicts the Patient; but that all those Membranes, by which the Lungs are connected to the Breast, are endow'd with a most exquisite Sensation; and if they are inflam'd, together with the Lungs, the Patient is pain'd as in the Case of a *Pleurisy*, accompanied with a *Peripneumony*:

This, according to him, is also the Reason why in Spitting of Blood, where the Blood, being immediately discharg'd from the Lungs, creates the most dangerous of all Disorders, the Patients never cease to hope, even in the very last Stages of the Disorder, because the Lungs themselves are insensible of Pain; for under every trifling Degree of Pain, the Patients become afraid of Death, and most People are more frightened for the Consequences, than hurt by the Disease itself; whereas, in the most terrible Disorders, when unaccompany'd with Pain, the Patient is not rack'd with the Fears of Death; and indeed this Distemper is more fatal than frightful to the Patient.

The Pulsation of the Arteries, according to him, propelled the Blood; for which Reason, if the Arteries are wounded, the Lips of the Wound are with Difficulty brought together, and kept in Contact. The *Arteria Crassa*, or the *Aorta*, which runs near the *Vena Cava*, in the same Direction with the *Spina Dorsi*, and by *Aretæus*, after *Praxagoras*, called *ἀρτερία πᾶχειν*, suffers Inflammation along with the *Vena Cava*, which Inflammation was by the Antients called a Species of *Causus*, since in both the same Symptoms appear, and the Fever in the one Case tends to a *Syncope*, as well as in the other; for the Liver is the Root of the Veins, and the Heart the Source and Origin of the Arteries. It is therefore probable, that the superior Parts of these Viscera are affected; for the Heart imparts Warmth to the Arteries, and the Liver conveys Blood to the Veins. Now since both these Viscera are very large, the Inflammations to which they are subject, must of course be very considerable. But this same Artery, in Inflammations of the *Vena Cava*, palpitates near the *Spina Dorsi*, which appears from the Pulsation in the other Part of the *Præcordia*; for the Artery, lying close by the Vein on its Left Side, is drawn into Consent with it, as being dispersed thro' the whole Body.

Those of the Antients, whose Writings have been handed down to us, scarce make any mention of this Disorder of this Artery and Vein. But whoever have handled this Subject, have follow'd the Opinion of *Praxagoras*, who, as we learn from *Rufus Ephesus*, affirm'd, that the Origin of Fevers was in that Vein which sends Branches from the Liver to the Kidneys, and which alone he called the *κοιλία*, *Cava*, tho' others also gave the same Name to that which rises upwards to the Heart thro' the *Septum Transversum*; so *Aretæus* likewise calls it, and says, that both these are only a Continuation of one and the same Vein.

The Veins rise from the Liver, as from their common Root, and receive the Blood they contain from it. From the Porta of the Liver, betwixt its Extremities, a large Vein arises, which, dividing itself still more and more, is at last dispersed thro' the Liver, in Veins so small and minute, as to become invisible. The Extremities of these Veins are inserted into the Mouths of others, which, growing gradually larger, and fewer in Number, at last terminate in the Liver in one great Vein, which, dividing itself again into two Branches, reach beyond the Liver. One of these Branches, penetrating the first Lobe of the Liver, again emerges in its gibbous Part; and having afterwards perforated the *Septum Transversum*, extends itself within the Breast, but adheres to no other Part; and being suspended there, is inserted into the Heart; this is called the *Vena Cava*. Another, penetrating through the fifth and inferior Lobe of the Liver, as far as its gibbous Part, goes out near the Spine, and runs along it to the Coxæ. This is also the *Vena Cava*; for it receives the same Name, because it is the same Vein arising also from the Liver: For if any one has a Mind, he may pass a Probe from the upper Part of the *Vena Cava*, which reaches to the Heart, into that Part of it which creeps along the Spina, and back again from the Spina, thro' the Liver, into the Heart, for the Passage is the same.

In this Vein, besides the above-mentioned Inflammation, those Disorders which the *Greeks* called *Κόσμητα*, arise; in which Case the Hæmorrhage consequent upon its Rupture, soon puts an End to the Life of the Patient.

The Blood is convey'd from all the principal Viscera to the hollow Vein at the Cubit; for this Vein, and that which lies above it, are Branches of one and the same Vein in the Arm: Hence it is of no greater Service to open the superior Vein

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than this; for they are entirely ignorant of the Sources of the Veins, who appropriate the superior Vein to the Stomach and Liver. But if there should happen any Effusion of Blood from the Spleen, some Physicians order the Vein lying betwixt the little Finger and the Ring-finger to be open'd, because they imagine, that it reaches to the Spleen; but this is also a Branch of the inferior Vein of the Cubit. Why then should any one choose to open it so near the Fingers, since at the Bending of the Elbow it is much larger; and permits the Blood to flow out more readily?

The Work of Sangulification belongs to the Liver, which is the Source of the Veins; and for that Reason the greatest Part of it is no more than a certain Concretion of Blood; for as the Aliments have Access to the Liver, and as there is no other way by which the Food is convey'd thro' the whole Body from the Stomach and Intestines; so the Blood passes from this Bowel to all the Parts of the Body. This was also the Sentiment of *Erassistratus*. The *Portæ Jecoris* consist of Nerves and Membranes, which are indeed small of themselves, but of great Importance to the Functions of Life; and of large Veins; for which Reason they are very subject to small Inflammations. Besides, some Philosophers have affirmed, that the Appetites of the Soul were lodg'd in this Place.

Now the Bile is formed in the Liver; and is secreted by means of a Cystis or Bladder situated there for that Purpose; and afterwards is convey'd to the Intestines by certain Ducts; and if they should be obstructed by a Scirrhus, or an Inflammation, or if the Contents of this Bladder should overflow, the Bile returns backwards, and is mix'd with the Blood, which, flowing thro' the whole Body, carries likewise the Bile along with it: Hence in Jaundices the Skin seems, as it were, ting'd with Bile, and the Excrements are white like Clay, and unting'd with the Colour of the Bile, because none of that Humour flows to them: Hence also Icteric Patients are costive, because their Bellies are neither moistened nor stimulated by the Bile.

The Aliment of the Spleen is black; and the Spleen itself deterges and refines the black Blood. It is a Bowel of a rare Contexture, and of a dissoluble Nature, and for this Reason subject to Impostumations and Abscesses.

The Stomach presides over Pleasure and Uneasiness, and because it is adjacent to the Heart, the common Source of all the Faculties, (for it is connected to the Middle of the Heart and Lungs, and with them adheres to the *Spina Dorsi*) it contributes very much to Strength, and to Composure or Dejection of Mind, upon account of its Consent with the Soul. This is the principal Faculty of the Stomach. From Pleasure arises a good Digestion, a full and fleshy Habit of Body, and a fresh and lively Colour. From Uneasiness the Contraries of these arise, and sometimes Dejection of Mind, when the Stomach is empty. The Disorders of the Stomach are, properly speaking, Nauseas, Vomitings, Loathings of Food, Hiccups, Eructations, and these too sometimes acid; and tho' in People labouring under Disorders of the Stomach, it is generally free from Thirst, yet in it the Source and Origin of Thirst is contained.

The Colon also contributes to the Concoction of the Food, as well as the Stomach, and the Aliments are convey'd from it to the Liver: Neither do all the Aliments pass thro' visible Canals, for Nature distributes the far greater Part of them thro' the whole Body by Vapours, which easily pass from one Part of the Body to another; and these very Vapours are also by Nature carried thro' the compact and solid Parts of the Body. The Colon is a very large Intestine, wide enough in all its Parts, and form'd into Sinuses, more thick and fleshy than the small Intestines, and more capable of bearing Injuries; and for this Reason, when this Intestine is the Seat of Colic Pains, the Danger is the less: For when the small Intestines are affected, a sharp and pungent Pain is felt; but when the Colon is affected, there is great Abundance of Humours, and a Sensation of Gravity is perceiv'd in it. By reason of its Situation and Connection, the Pain sometimes reaches to the Ribs, and makes a *Pleurisy* suspected; for even in the Colic a Fever sometimes arises. Sometimes the Pain appears to be on one Side, sometimes on the other, under the spurious Ribs; so that the Liver, or Spleen, seems to be affected, and the Pain falls down again to the Illia. With some this Pain seizes the *Os Sacrum*, the Thighs, and the *Cremaster Muscles* of the Testicles; so that *Aretæus*, knowing the Reasons of these Symptoms, justly stigmatized the Ignorance of some Physicians, who, in this Case, cut off the *Cremaster Muscles*, as if they had contained the immediate Cause of the Disease. Now can any thing advanced by later Anatomists possibly come nearer the Truth?

There are two Coats of the Intestines, as well as of the Stomach, one of which lies obliquely upon the other. When therefore the Connection of these is dissolved, as it sometimes happens in Dysenteries, the interior Coat, separating lengthways, is discharg'd by Stool, and strikes many, who are unacquainted with the true Cause, with a Dread of having lost their Intestine; and the exterior Coat remaining within, incarns and cicatrizes, and then the Patient becomes sound; but the lower



Intestine is only subject to this Accident, as having its Coats of a fleshy Nature.

The Kidneys are naturally glandular Bodies, of a reddish Colour, resembling rather the Liver, than the Breasts and Testicles. These are Glands, but they are whiter than the Kidneys. The Kidneys indeed resemble the Testicles in Figure, but they are broader, more crooked, and contain small Sinuses, with narrow Necks, for percolating the Urine. From these two small nervous Canals, resembling little Pipes, branch out, which are called the Ureters, and are inserted in the Sides of the Bladder on each Side, and from both Kidneys there is an equal Conveyance of the Urine to the Bladder. Nature has formed the Sinuses of the Kidneys oblong, and by that means adapted them to the Diameters of the Ureters, which are but small.

The Bladder is of a very inconsiderable Thickness, and naturally of a nervous Texture; for which Reason it neither incarns nor cicatrizes easily. When it is full it is distended, and when empty it collapses; so that in case of an Ulcer, it suffers just as much as a Joint does in Extension and Contraction. Now all Ulcers upon Joints are cur'd with the greatest Difficulty. Besides, bilious Urine, and an inveterate Ulcer, must necessarily corrode the Bladder.

The Anus and Bladder are contiguous to each other; and for this Reason in Inflammations of the Rectum, the Bladder with Difficulty discharges its Contents; and in Disorders of the Bladder, the Fæces are not discharg'd, even tho' the Belly should not happen to be costive.

Certain Membranes are affix'd to the Ilia, which are nervous Ligaments of the Uterus. These Membranes, which are inserted in the Bottom of the Uterus, hard by the Loins, are small and slender; the others towards its Neck, and which adhere here-and-there to the Ilia, are very nervous, and spread much after the manner of the Sails of a Ship. Now if all these Membranes are relax'd, the Uterus falls out of its Place. Sometimes the interior of the two Membranes which surround the Uterus appears, and may be separated from the other; for only two of its Membranes can possibly be divided, one of which recedes from the other, by reason of the Fluxion of Humours, as it happens likewise in Miscarriages and hard Labours, in which Case it adheres to the Chorion; for if that is forcibly extracted, the Coat of the Uterus comes along with it; but if the Woman escapes Death, and if it returns to its proper Situation, it reunites exactly, or else hangs a little out. Sometimes the Mouth of the Uterus falls out only as far as its Neck; but it is easily restor'd, if Fumigations are used, and the Midwife uses proper Endeavours to replace it gently, and by Degrees.

The Head is the Origin of the Senses and Nerves, and rather attracts the Blood from the Heart, than conveys it to other Members. When therefore the Cause of any Disorder is lodg'd in the Nerves, the Senses must be injured. Tho' the Nerves arise from all Parts of the Head, yet the anterior Part of the Head is the Store-house, as it were, of all the Senses, and from it all Aids and Injuries are deriv'd. For this Reason, in applying Fomentations, we ought to proceed no farther than the Vertex.

*Aretæus*, following the Opinion of *Erassistratus*, maintain'd, that the Nerves were not only the Origin of Sensation, but the Source of all Action and Motion of the Members. So that if the Origin of any Nerve below the Head is affected, as the Membrane or Meninx of the Medulla Spinalis, the Parts which come under the same Denomination, and also those which are contiguous, become paralytic; the Parts of the Right Side, if the Nerves on that Side be hurt; and those of the Left, if the Nerves on that Side should happen to be injured. But if the Cause of the Disease be lodg'd in the Head, if the Nerves on the Right Side be affected, the Parts on the Left Side will be paralytic, and vice versa. The Reason of this Phenomenon is, that the Nerves change Sides near their Origin; for those on the Right Side do not go directly all the way to the Parts on the Right Side; but both those on the Right and Left Sides, being inserted in their proper Origins, they immediately cross one another in the Form of the Greek Letter X, tending to opposite Parts. But whether the whole Body, or some of its Members, either on one or both Sides, are paralytic, the Nerves which arise from the Head are sometimes affected, and in short, are easily deprived of their sensitive Faculty, but do not of themselves so readily become incapable of Motion. These Nerves also, if by Consent they contract any Injury from those destin'd for the Purposes of Motion, lose in some measure their Capacity for Motion, with some Degree of which, tho' a very small one, they are naturally endow'd. Sometimes also the Nerves arising from some Muscles, and terminating in others, are hurt; and these are the Nerves which are chiefly capable of Motion, and convey it to the Nerves of the Head, which derive a great deal of their Motion from them, tho' they have some Degree of it in themselves. These Nerves therefore suffer principally a Decrease of Motion, but they rarely or never lose their sensitive Faculties; and if at any time a Congeries of Nerves rising from any Bone, and terminating in another, should be either

relaxed, or broke, the Parts become impotent and contracted; but they are not depriv'd of Sensation.

According to *Aretæus*, a *Tetanus* is a Disease incident to the Nerves, in which he also taught, that the principal Cause of Melancholy resided; he likewise thought, that they were affected, and often contracted, in a Phrenitis; and that in the Gout all the System of Nerves was affected.

These were the Notions maintain'd by *Aretæus*, with regard to Anatomy, which he made chiefly subservient to Physic, in accounting for the Symptoms and Causes of Diseases. In this he imitated the Sect of the Dogmatists, who maintain'd, *That since Pains and Disorders of various Kinds were incident to the internal Parts, no one could apply Remedies to them who was ignorant of their Structure.* So that tho' the Notions of *Aretæus* concurr'd sometimes with those of *Hippocrates*, *Erassistratus*, or *Herophilus*; yet he was not the blind Votary of any Party; or the too fond Admirer of any Man; but freely declares what he himself thought Truth. *Wigan's Preface to Aretæus.*

#### RUFUS EPHESIUS

Is the next Anatomical Author of Note we meet with. He liv'd under the Emperors *Nerva* and *Trajan*, and is esteem'd a very skilful Physician by *Galen*, who also informs us, that he wrote in Verse upon the *Materia Medica*. He also wrote a Treatise upon the *atra Bilis*, or black Bile, and some other Pieces quoted by *Suidas*, but these have not reach'd our Hands; for the only Remains we have of this Author are, a small Treatise on the Greek Names of the several Parts of the human Body, another on the Diseases of the Kidneys and Bladder, and a Fragment relating to purgative Medicines. The principal Design of this Physician, in the first of these Works, was to give a general Idea of Anatomy, and to dissuade those who studied Physic in his own Days from being deceiv'd in reading the ancient Authors, some of whom had describ'd the Parts of the human Body under one Set of Names, and others of them the same Parts under quite different Appellations. Besides, we may fairly gather from what *Rufus* advances in this Treatise, that in his Days all the Anatomical Demonstrations were made upon Beasts. *Make Choice*, says he, *of an Animal as nearly resembling Man as you can possibly meet with. You will not find all the Parts of the Animal exactly, and in every Particular, like those of Man; but there will at least be some Analogy or Similitude betwixt them.* Formerly, continues he, *Anatomy was taught on human Bodies.*

We also learn from the same Book, that those Nerves, which were afterwards distinguished by the Epithet *recurrent*, were but just then discover'd. *The Antients*, says *Rufus*, *call'd the Arteries of the Neck carotid or carotic Arteries, which Epithet, in their Language, imply'd Sleep-inducing, because they imagined, that when these Arteries were strongly compress'd, the Animal was inclined to Sleep, and lost the Use of its Voice: But in this Age we have discover'd, that these Symptoms are not occasioned by the Compression of these Arteries, but by that of the Nerves, which are contiguous to them.*

'Tis also probable, that *Rufus* observed certain Vessels of the Matrix, of which preceding Anatomists had made no mention. *Herophilus*, says he, *did not believe, that Women had any Parastatae Varicosæ; but upon examining the Matrix of a Beast, I have observed certain Vessels which arise from the Testicles, and which, being folded back upon both Sides in the Form of Varices, terminate in the Cavity of the Matrix. Upon compressing these Vessels, there even flows from them a glutinous Humour; and 'tis thought that they are certainly seminal Vessels of the varicose Kind.* *Rufus* had before observed, that in Men there were four spermatic Vessels, two of the varicose, and two of the glandular Kind; and that the Extremities of the former, which adhered to the Testicles, were call'd *PARASTATÆ*.

What he calls in this Passage *Parastatae Varicosæ*, appear to be the same things, which are now called *Tubæ Fallopianæ*, from *Fallopins*, the supposed Discoverer.

#### GALEN

Is the next and principal Anatomist of Antiquity; to him we are obliged for most we know with respect to the Anatomy of the Antients. As a complete Extract of his Works on this Subject would be too voluminous, I shall in this Place only give some general Remarks on his Anatomy, reserving his particular Discoveries for the Articles to which they properly belong.

*Galen* maintain'd, that the *Aschypiadae*, or Descendants of *Esculapius*, down to the very Days of *Hippocrates*, who was one of that Race, were perfect Masters of Anatomy; but that none of that Family, except the last, had wrote any thing upon that Subject. The Reason of their not writing was, that their Children, to whom alone they communicated their Art, learn'd Anatomy immediately under themselves, almost as soon as they learn'd the Letters of the Alphabet, and that, by seeing Dissections made, and making them themselves; so that they had no Occasion for Books to instruct them in this Art. It afterwards happened, says *Galen*, that *Hippocrates* having wrote on Anatomy, as well as the other Branches of Physic, and having first made Strangers his Disciples, Anatomy began to decline apace,



apace, because the Physicians who came after him, satisfied themselves with reading his Books, without taking the Pains to dissect themselves. *Diocles*, who came almost immediately after *Hippocrates*, wrote also on the same Subject, but in such a manner as discovered abundance of Ignorance.

Things remained in this Situation till the Death of *Diocles*, which happened much about the Time, in which *Herophilus* and *Erasistratus* appear'd. These two Physicians apply'd themselves industriously to Dissections; and had, for that Purpose, as many human Subjects as they desir'd; so that they soon re-established Anatomy, which had been neglected during the above-mentioned Interval. But the Anatomists of succeeding Ages had not the same Opportunities of dissecting human Bodies; the Reasons for which are at Length enumerated by *Riolanus*. Most human Bodies, says he, were burned immediately after Death. There was a Law enacted at Rome, in Consequence of the Disorders which reign'd during the Civil War, which happened under *Marius* and *Sylla*, which discharged and prohibited the committing any Outrages on the Bodies of the Dead. We also know, that in the Days of Antiquity, People were not only afraid of touching, but even of coming near, human Carcasses; and for that Reason the *Vespillones*, or those who interr'd the Dead, and even the *Coriarii*, or those who prepared the Skins of Beasts, had their Dwellings without the Gates of Rome; neither had the public Executioners any Residence in it; for the Romans were so delicate in this Point, that they would not so much as allow any one to be punished within their Walls. The Laws of the *Jews*, relating to those who touched dead Bodies, are too well known to stand in need of an Enumeration; but every one does not know, that the Sentiments of the *Greeks*, with regard to this Point, were the same with those of the *Jews*. This *Riolanus* proves by a Passage from the *Iphigenia* of *Euripides*: If any one, says that Poet, stain his Hands by Murder; if any one touch a Carcase, or a Woman immediately after Child-birth; the Gods discharge him from their Altars as impious and profane. The Difficulty which there formerly was, of finding human Bodies for Dissection, appears from a Passage of *Pliny* to the same Purpose, [Lib. 28. Cap. 2.] where he says, that it was against the Laws to look into the Entrails of Men. But these Authorities, and all the others brought by *Riolanus*, cannot hinder him from thinking, that in all Ages Physicians have fallen upon the Means of procuring human Bodies for Dissection. This he endeavours to prove by a Passage of *Pliny*, where [Lib. 19. Cap. 5.] he says, that the Kings of Egypt in antient Times opened the Bodies of the Dead, in order to know of what Distempers they died. The *Egyptians* also used to embalm their Dead, which they could not possibly do without opening them. There were at *Alexandria* [*Galen. Administrat. Anatom. Lib. 1. Cap. 2.*] human Skeletons, by means of which young Physicians learned to know the Bones: We read in *Rufus Ephesus*, that the Physicians who lived before him, had learned Anatomy upon human Bodies; and the Accounts handed down to us of *Herophilus* and *Erasistratus* will not allow us to doubt of it. *Galen* [*De Dissect. Pulvæ, Cap. 5.*] pronounces concerning the first of these Physicians, That he had acquired a very exact Knowledge of Anatomy, by dissecting Men, and not Beasts, as most other Physicians used to do. *Seneca*, according to *Riolanus*, affirms, *Medicos, ut vim ignoratam Morbi cognoscerent, Viscera rescidisse; bodie Cadaverum Artus rescindi, ut Nervorum Articulorumque Positio cognosci possit.* That Physicians opened the Bowels of Men, in order to discover the Causes of their Diseases; and that even in his Time they dissected the several Parts of Carcasses, in order to know the Situation of the Joints and Nerves. But in the common Edition of *Seneca*, there are only these Words: *Medici, ut vim ignotam Morbi cognoscerent, Viscera hominum resciderunt.* Physicians, that they might know the hidden Natures of Diseases, opened the Bowels of Men. Now *Seneca*, according to *Riolanus*, lived in the Days of *Augustus*, *Tiberius*, and *Nero*; and the Roman Physicians were allow'd to dissect the Carcasses of their Enemies, which in Reality they did during the Wars of *Marcus Aurelius* against the *Germans*, as *Galen* informs us. It was also no difficult Matter to procure the Bodies of such as were put to Death at Rome, since they remained uninterr'd without the *Esquiline Gate*, now called the *Porta di S. Lorenzo*. The Bodies of exposed Children might have also been easily obtained. In short, since in these Days Masters had great Numbers of Slaves, who could hinder them from using any Liberties with the Carcasses of these poor Creatures, which they themselves should judge proper? *Riolanus* might have subjoin'd to all these Proofs, what *Cicero* says [*Academic. Quæst. Lib. 4.*]: *Corpora nostra non novimus; qui sint situs Partium, quam Vim quæque Pars habeat, ignoramus. Itaque Medici ipsi, quorum intererat ea nosse, aperuerunt ut viderentur; nec eo tamen, aiunt Empirici, notiora esse illa, quia fieri possit, ut patefacta & detecta mutantur.* We know not, says he, our own Bodies; we are ignorant of the Situation of the Parts, and unacquainted with the Powers of each particular Member. For this Reason, the Physicians themselves, whose Interest it was to be thoroughly versed in these things, dissected human Bodies with a View to dis-

cover them! But, say the *Empirics*, they are not by that means better understood or comprehended by us, because 'tis possible, that so soon as they are discovered, and exposed to View, they may assume a different Nature, than what they had before. The same *Riolanus*, having proved, in general, that the antient Physicians sometimes dissected Men, endeavours to shew in a particular manner, that *Hippocrates*, *Aristotle*, and *Galen*, did so too. As for the two first, they come not under our Consideration at present. I shall therefore only inquire a little into the Truth of his Pretences, with regard to *Galen*, in whose favour he stands up against some Moderns, who have maintain'd the contrary: People, says he, have no Reason to accuse *Galen* of never having dissected human Subjects, and of having taught the Anatomy of an Ape instead of that of a Man. I could easily prove by a great many Quotations from this Author, that he has dissected both Apes and Men; but that he has only taught the Anatomy of Man. Upon this Occasion, he quotes two or three Passages from *Galen*, by which indeed it appears, that this Author treats, or, at least, says he treats, of the Anatomy of Man; and in one Passage, he even promises to publish separately the Anatomy of some other Animals. The Words of this last-mentioned Passage run thus: I have not here a Design to enumerate the Number of Lobes which make up the Livers of other Animals, because I have not as yet described the particular Structure of any of their Organs, except in some Passages, where I have been obliged to do it, in order to illustrate what I say concerning Man: But, if I live, I shall some time or other describe the Structure of the Bodies of Beasts, and furnish out an exact Anatomy of all their Parts, as I have now done with regard to the Parts of Man. *Riolanus* quotes another Passage, wherein *Galen*, when talking of some Anatomists of his Days, says, That it was no wonder if they were deceived, since they only dissected the Hearts and Tongues of Oxen, never considering at the same time, that these Parts are not, in these Animals, the same they are in Men. One may reasonably suppose, that if *Galen* had not himself examined those Parts in Man, he would not have been so forward in censuring those who had not done it more than himself.

After the Passage in which *Galen* commends *Herophilus* for learning Anatomy by dissecting Men, he adds, That most other Physicians dissected only Beasts. This Passage proves, that *Herophilus* was not the only Anatomist who dissected Men; if none, except he, had done so, our Author instead of these Words, Most other Physicians, should have said, All other Physicians. Now, if some of the Physicians of his Time dissected human Bodies, it is very probable, considering the Fondness he discovers for Anatomy, that he was not idle in this respect, whilst others were labouring to improve themselves. I believe then, as well as *Riolanus*, that *Galen* may possibly have dissected human Bodies; but 'tis probable he did so very rarely, and perhaps but imperfectly too. What has already been said upon this Head, proves that the thing could not be undertaken without a great deal of Difficulty; and in this Sentiment *Galen* himself confirms us, by the Pains he is at in speaking of several other Methods, in which he thought Anatomy might be learn'd. He advises (*Anatom. Administrat. Lib. 6. Cap. 1.*) to make choice of that Species of Apes, which bear the nearest Resemblance to Man; or, if such, continues he, cannot be found, we must dissect those whose Heads resemble that of a Dog, or Satyrs, or Lynxes: If these Animals should still be wanting, we must make use of Bears, Lions, Weasels, or Cats, because these Animals have a kind of Fingers resembling those of Men. He goes on thus: I have never made an Attempt to dissect Ants, Gnats, Fleas, or any such minute Insects; but I have often dissected Weasels, Rats, Serpents, and several Species of Birds and Fishes; by which I have discovered, that the same Principle of Intelligence is employed in the Formation of all Animals; every one of which has the Structure and Mechanism of its Body adapted to the State and Condition of its Nature. It also appears, that *Galen* sometimes dissected Hogs and Goats; and he himself (*Anatom. Administrat. Lib. 7. Cap. 10. De Usu Part. Lib. 17. Cap. 1.*) speaks of an Elephant, the Whole, or at least some Parts, of which he had dissected at Rome. It will, no doubt, be said, that our Author advised to begin with dissecting Beasts, and to finish and perfect our Knowledge of Anatomy by dissecting Men. All this is true, but let us see in what Strain he talks of this last Affair (*Administ. Anatom. Lib. 3. Cap. 5.*): I advise you, says he, first to exercise yourself thoroughly upon Apes; that if you should find an Opportunity of dissecting a human Body, you may be able readily to discover and know each Part of it; in which Case you will be foil'd in your Attempts, unless, before-hand, you have frequently exercised yourself upon other Subjects: For want of such a previous Exercise, those who dissected the Bodies of the *Germans*, during the War undertaken by that People against *Marcus Aurelius*, reaped no other Advantage from their Labours than a Knowledge of the Situation of the Viscera. But a Physician who has before try'd his Hand upon other Animals, and especially upon Apes, sees at once the Peculiarities of the Parts he dissects. It is more easy for a Man of Skill and Practice in Anatomy, with a single Glance of his Eye, to dis-



ver what he has elsewhere seen before, than for a Novice in the Art to perceive even the most evident Things at his greatest Leisure. Many of this first Class of Men have very quickly discovered what they wanted to see, upon the Bodies of those who were condemned to Death, or exposed to the Fury of wild Beasts, or upon the Carcasses of Robbers, who were denied the Privilege of Burial. Besides, large Wounds, or deep and hollow Ulcers, have sometimes discovered, to these Men of Skill, many Parts of the human Body resembling those they had formerly seen in Apes; whereas those who had never endeavoured to improve themselves upon these Animals, could reap no Advantage upon Occasions of this Nature. Those who have frequently dissected the Bodies of exposed Children, well enough know, that the Bodies of Apes and Men very much resemble each other. It is not to be doubted, but Galen employ'd some of these Means, or others of a like Nature, in order to instruct himself in Anatomy; and the Anatomy acquir'd in this Shape, was by him styled, *Ἀνατομὴ κατὰ πείρασιν*, or *Anatomy acquired by Accident*, which was the only Kind approv'd of by the Empirics. That Galen enjoy'd Opportunities of this Nature, is plain from another Passage, where, after having advised young Physicians to travel to *Alexandria*, in order to see the Skeletons, and not to satisfy themselves with what they read in Books upon that Head, he adds these Words: *I have often examined the Bones of Men, when Sepulchres or ruined Monuments have fallen in my way. A Sepulchre, slightly built upon the Brink of a River, happened to be destroy'd by the Impetuosity of the Torrent, which had overflow'd it, so that the Body, which had been laid in this Sepulchre, being carried off by the Current, stopp'd at last in a Place not unlike a Harbour, surrounded with pretty high Banks. I had an Opportunity of seeing this Body, of which the Flesh was already rotten; but the Bones were still connected with one another; so that one would have said it was a Skeleton, prepared for the Instruction of young Physicians. One Day I also saw the Carcase of a Robber lying on a Mountain, far enough from any public Road: This Robber was kill'd by a Traveller, whom he had attack'd; and the Inhabitants of the adjacent Parts refusing to bury him, because they judged a Man so wicked the proper Prey of Vulturs, his Bones were two Days afterwards stripp'd of all their Flesh, and dry, like those prepared for the Instruction of Physicians.* Galen speaks also, in the same Chapter, of a Disease attended with *Carbuncles*, which had raged in most of the Cities of *Asia*, and afforded him Opportunities of examining the Situation and Disposition of the Muscles of several Parts, which were stripp'd of the Skin, and some Part of the Flesh.

If our Author confin'd himself to the Methods above specified, he cannot sure be said to have made complete and regular Dissections of the human Body. Among all the Subjects, from which he says Anatomy may be learn'd, none, except the exposed Children, seem calculated for furnishing him with the Materials of a complete Anatomy; because it was no difficult Matter to carry off some of these little Bodies, and afterwards dissect them, with the Leisure necessary for that Purpose: And this, in my Opinion, he himself seems to insinuate, when he says, that *those who frequently dissect exposed Children, well enough know, that the Body of Man very much resembles that of an Ape.* If Dissections of this Nature were often made in the Days of Galen, as we may gather from this Passage, 'tis probable that he, like others, employ'd himself in this way; tho' a Principle of Caution might restrain him from making a public Declaration of it, on account of the Aversion which then reign'd in the Minds of People against Practices of that Nature. It may be said, that it was not much more difficult to get some of the Bodies of executed Criminals carried off; but he no-where insinuates, that any one made the least Attempt of this Kind; for when he speaks of what was learn'd by examining the Bodies of Robbers, or other Carcasses casually found in the Fields, he informs us, that this Examination was made upon the very Spot where such Bodies were found, by endeavouring, as soon as possible, to discover the Part or Circumstance sought for. This may be gather'd from the Passage already quoted, where he says, that those who have dissected Apes are able *speedily* to inform themselves, by means of the Carcasses they find in the Fields, with regard to the Disposition of those Parts which they may have formerly seen by dissecting Animals. In the Course of this Passage, he three or four times repeats the Word *speedily*, which expresses the Shortness of the Time which he himself, or any body else, had to view the Parts of the Carcasses we are now speaking of, for fear, no doubt, of being surpris'd in an Action, which must have struck Terror into the Spectators, and must be own'd to be, in its own Nature, none of the most agreeable. In short, the Pains Galen is at to specify all the other Means of learning Anatomy, which we have mention'd, sufficiently prove, as we have already observed, that, in these Days, regular Dissections of the human Body could be made but very rarely, and with a great deal of Difficulty. A collateral Proof of this is, that such Dissections were not publickly made in the Schools of the Physicians; for we may well suppose, that if they were made in any Part of the World, it must have been at *Alexandria*, the Capital of *Egypt*, where the Custom of open-

ing the Dead, in order to embalm them, might have been supposed, in some measure, to reconcile and inure them to the Horror which attends a complete Dissection: But we do not find, that any thing of this Nature was practis'd there since the Days of *Herophilus* and *Erasistratus*, or of the antient Kings of that Country. All that was done in this respect, even in that famous Medicinal School which flourished in the Days of *Galen*, was to teach Osteology upon human Skeletons, which might have been very antient. If the Masters of this School had exhibited, upon human Subjects, all the other Parts of the Anatomy of Man, *Galen*, and a great many other Authors, had not fail'd to acquaint us with it, in numberless Passages. As for those Passages from many Authors, which have, since the Time of *Riolanus*, been advanced to prove, that in the Days of Antiquity human Dissections were practis'd, it is easy to shew, that almost all of them have a Reference to what pass'd long before the Times in which these Authors wrote; and that the Accounts handed down of *Herophilus* and *Erasistratus*, might have laid a Foundation for all that has been said upon that Subject. But, to return to *Galen*; taking it for granted, that he dissected some human Bodies, yet nothing is a more convincing Proof of his not having dissected a sufficient Number, than his describing, in several Passages, the Parts of Apes, or some other Animals, instead of those of a Man. This has been clearly shewn by *Vesalius*; and those who have maintained the contrary, have been miserably blinded and misled by their superstitious Attachment to *Galen*.

But tho' *Galen* has sometimes confounded the Parts of Beasts with those of Men, his Anatomy is nevertheless a very valuable Work, and *Vesalius* himself had a high Veneration for it; and, indeed, it must be own'd, that nothing could set the Merit of its Author in a fairer or truer Light than this Piece; if it be true, as he says, that no one had wrote well on Anatomy before him; and that he had made many important Discoveries in this Branch of Physic. It is, indeed, possible, that, considering his Attachment to Anatomy, he might have made some Discoveries of his own in that Science; tho', at the same time, his Propensity to commend himself must render every thing he says, concerning himself, suspected: But, the Truth is, whether he was the first who placed Anatomy on a good Foundation, or whether he raises his own Character on the Labours of others; from which, at the same time, he has not drawn all the Advantage that could have been wish'd; yet still 'tis very certain, that we should have suffer'd very considerably if all his Anatomical Works had been lost, since they are the only remaining Monuments of all that the Antients wrote upon that Subject; for what else we find, of that Nature, is scarce worth Notice, if we except what *Aristotle* has given us upon that Head. 'Tis true, *Galen* had not attain'd to Perfection; but neither can the Moderns pretend to that; and 'tis probable, that, without those *Lights*, with which he supplied the very Men who have censur'd him, we should have still been in the Dark, with regard to a great Part of that which he has clearly demonstrated. *Galen's* two principal Treatises upon Anatomy are, his *Anatomical Administrations*, and his Book *On the Use of the Parts of the human Body*. The former contained fifteen Books, of which the six last are lost: The latter, which we have complete, contains seventeen. We have also a Book of his, which treats *Of the Bones* in particular; another, *On the Dissections of the Muscles*; a third, *On the Dissection of the Nerves*, which is imperfect; a fourth, *On the Dissection of the Veins and Arteries*; a fifth, in which the Author proves, in Opposition to *Erasistratus*, *That there is Blood in the Arteries*; a sixth, *On the Anatomy of the Matrix*; a seventh, *On the Organ of Smelling*; an eighth and ninth, *On the Usefulness and Causes of Respiration*; a tenth and an eleventh, *On the Motion of the Muscles*; a twelfth, *On the Formation of the Fetus*; and two others, *Concerning the Seed*; without taking into the Account what we find concerning Anatomy, in his Books *On the Natural Faculties*, and elsewhere, scatter'd up and down his other Works. *Galen* wrote several other Books, which are lost; in some of which he treated of the *Anatomy of Hippocrates*, and in others of that of *Erasistratus*; in a third Work he treated of the *Dissection of dead Bodies*; and in a fourth concerning *that of living Animals*. It were to be wished, that all these had reach'd our Hands, but especially those Pieces relating to the Anatomy of *Hippocrates* and *Erasistratus*; as also the Abridgments he made of the Anatomical Works of *Lycus* and *Marinus*; the latter of whom wrote twenty Books, which were abridg'd by *Galen*, and of which he has preserv'd the Titles, which are so curious as to lay a just Foundation for our lamenting the Loss of so great a Work.

But tho' we have not all the Works of *Galen*, yet those we have, happen luckily to comprehend almost the Whole of his Anatomy; and if his *Anatomical Administrations* are not complete, the other Books we have mention'd, and especially those concerning the *Use of the Parts*, supply that Defect; for this Book *on the Use of the Parts*, is a Master-piece, which has been justly admired in all Ages, and which sufficiently discovers the Extent of its Author's Genius; since in it the Physician, as well



well as the Philosopher, may find Satisfaction. But what, in a particular Manner, strikes Christians with Admiration is, that *Galen*, tho' a Heathen, yet acknowledg'd One God, all-wise, all-good, and all-powerful, the Creator of Man, and of all other Animals. The Words he uses, in one Passage of this Book, have not only strong Sense, but also something of a divine and striking Energy in them [*De usu Part. Lib. 3. Cap. 10.*]: In writing these Books, says he, I compose a true and real Hymn to that awful Being, who formed us all; and, in my Opinion, TRUE RELIGION does not so much consist in sacrificing many Hecatombs on his Altars, or in making him rich and costly Presents of the most fragrant and exquisite Perfumes, as in being persuaded ourselves, and endeavouring to persuade others, that he is possess'd of unerring Wisdom, irresistible Power, and all-diffusive Goodness. For his having ranged all Things in that Order and Disposition, which is best calculated for the Continuation of their respective Beings, and his having condescended to distribute his Favours to all his Works, is a glaring Proof of his Goodness, which calls aloud for our Hymns. His having found the Means necessary for the Establishment and Preservation of this beautiful Order and Disposition, is an incontestable Proof of his Wisdom, as his having done every thing he pleased, is of his Omnipotence. 'Tis not in one Passage only, that *Galen* talks in this exalted Strain; these are so much the genuine Sentiments of his Heart, that he loses no Opportunity of inculcating them, and confuting, at the same time the *Epicureans*, who maintained, that this beautiful and harmonious Frame of Nature was the blind Result of a fortuitous Concourse of Atoms. 'Tis true, that [*De usu Part. Lib. 11. Cap. 14.*] he opposes *Moses* for having maintain'd, that the Will, or sole Command of GOD, was the only Cause of all Things. *Galen* does not admit of this Principle of *Moses*, except the Will of GOD be taken in Conjunction with the Choice which he made of the most proper Materials, for answering the particular Ends he had proposed to himself, after having known what was really best, with regard to the Arrangement of each Body; for, says our Author, GOD could not have form'd Man out of a Stone, nor an Ox or a Horse out of a Parcel of Ashes. *Galen* did not reflect, that, as GOD was the Master and Creator of Matter, so his Will was sufficient to make any Part of it assume that particular Form, and all those other Modifications, which were requisite for answering his Ends. If *Epicurus*, bewitch'd as he was with his Atoms, had acknowledg'd the Supreme Cause of their Arrangement, he would have reason'd better upon this Subject than *Galen*; but *Galen* was misled by *Plato*, or *Aristotle*, and not by *Epicurus*.

#### The younger SORANUS EPHESIUS

was contemporary with *Galen*; he first practis'd Physic at *Alexandria*, and afterwards at *Rome*: He wrote a Treatise on the Disorders of Women.

There is a Treatise on the Uterus, printed in *Greek* at *Paris*, 1551. which is supposed to be a Fragment of the Book of *Soranus* above-mention'd.

In the *Venice* Edition of *Vesalius*, 1604. the Anatomy of the Matrix, from *Soranus*, is publish'd in *Latin*. And the same Treatise was printed, together with the Works of *Theophilus Protaspatarius*, at *Paris*, 1556. 8vo.

#### THEOPHILUS PROTASPATARIUS, or rather PROTAS-PATHARIUS,

a *Greek* Anatomical Author, lived, according to *Fabricius*, in the Time of the Emperor *Heraclius*: He was undoubtedly a Christian, and probably a Monk, as he is styled in some ancient Manuscripts. He wrote five Books, *περὶ κατασκευῆς ἀνθρώπου σώματος*, Of the Fabric of the human Body, in which he is said to have epitomiz'd excellently *Galen* of the Use of the Parts; and besides mentions some things not to be found in any preceding Author. Thus he asserts, that the first Pair of Nerves, arising from the first Ventricles of the Brain, is extended to both the Nostrils; and that by means of these, Smells are convey'd to the Brain.

Thus also he says, that two Muscles are concern'd in shutting the Eye-lids, but that they are open'd by one only.

According to him, the Substance of the Tongue is muscular.

He also first described a very strong Ligament, which is common to, and fixes all the Articulations of the Vertebrae. This Passage is very remarkable, and, as it may serve as a Specimen of his Work, I shall insert it: *Ἐπειδὴ δὲ καὶ κύριον ἔμειλλεν ὁ ἀνθρώπου, καὶ ἀναθεῖναι, ἢ κ' ἡρεῖσθαι ἢ ἀγαθὴν τῷ Θεῷ πρόνοιαν εἰς μένους τὰς κατὰ μέρος συνδύνας δέσμιους τὰς σπονδυλάς· ἀναγκαῖα γὰρ ἔστι καὶ ἰσχυρὰ ἢ χρεῖα· ἀλλ' ἔβωθεν μὲν τῆς ἀκρότης τῆς ράχης, ἐπέθηκε σύνδεσμον, ἔαρθεν μὲν τῇ χρεῖᾳ, νευροχονδρῶδιν δὲ τῇ σκία, ἀπὸ κεφαλῆς ἀρχαίς συνδύσιν ἀπώσας διασθρῶσας τῶν σπονδυλῶν κοινὸν σύνδεσμον.*

But as it is necessary for a Man to bend himself forwards and backwards, it did not seem sufficient to the good Providence of GOD to furnish each particular Articulation of the Vertebrae with proper Ligaments, which, however, are very necessary, and of

great Use; but, besides these, it added, on the Outside of the Spine of the Back, a Ligament of a yellow Colour, and of a nervous-cartilagineous Substance, as a common Ligament to all the Articulations of the Vertebrae of the Spine.

'Tis probable, that this Author also knew, that the Substance of the Testicles is vascular; for he takes Notice of a prodigious Number of capillary Vessels, as fine as a Spider's Web, which, he says, are dispersed in the glandular Substance of these Parts.

This Work of *Theophilus* was publish'd at *Paris* in *Greek*, in 1555. 8vo. Dr. *Douglas* informs us, that it was also publish'd in *Greek* at *Paris*, 1540. But, I am afraid, this may be a Mistake; for *Vander Linden* and *Fabricius* inform us, that the *Paris* Edition of 1540. is only the *Latin* Translation of *Junius Paulus Crassus*; but as I have never seen this Edition, I cannot determine it. *Fabricius* has given this whole Treatise in *Greek* and *Latin*, at the End of the twelfth Volume of his *Bibliotheca Græca*.

The above-mention'd Translation was also publish'd at *Venice*, 1536. 8vo. at *Basil*, 1539. 4to. and, with some other Authors, at *Basil*, 1581.

This *Theophilus* is also Author of several other Medicinal Treatises.

The next Anatomical Author is

#### ORIBASIIUS.

He, in two large Books, has described all the Parts then known, of the human Body, and assign'd the proper Office to each of them; but he has added little to what *Galen* has discoursed of in his Anatomical Works; and upon the account of this Treatise, rather than of any other of his Writings, he deserves the Name given him of *Simia Galeni*, the Ape of *Galen*. Only one thing we find, which is either omitted by *Galen*, or is lost, together with some other of *Galen*'s Works, the first Description of the Salivary Glands, which is this: "On each Side of the Tongue lie the Orifices of the Vessels, which discharge the Spittle, and into which you may put a Probe. These Vessels take their Rise from the Root of the Tongue, where the Glands are situated. They rise from these Glands, in much such a manner as Arteries usually do, and convey the Salivary Liquor, which moistens the Tongue, and all the adjacent Parts of the Mouth." See *ORIBASIIUS*.

#### NEMESIUS

is an Author whose Name must by no means be omitted in a History of Anatomy. He was Bishop of *Emissa*, a City of *Phœnicia*, at the latter End of the fourth Century: He wrote a Treatise *περὶ φύσεως ἀνθρώπου*, Of the Nature of Man, of which there have been the following Editions:

*Antwerp*, 1565. 8vo. in *Greek*, with the *Latin* Translation of *Nicasius Ellebodus*.

*Oxon*, 1671. 8vo. *Greek* and *Latin*.

*Vander Linden* and *Douglas* mention an Edition at *Antwerp*, 1584. 8vo. but *Fabricius* takes no Notice of it.

A *Latin* Translation by *Georgius Valla*, was printed at *Antwerp*, 1538.

An *English* Translation was printed *London*, 1636. 8vo.

As to the Anatomical Discoveries of *Nemesius*, Dr. *Freind* makes the following Reflections:

The *Oxford* Editor ascribes two Discoveries to him, one of which was the most considerable that ever was made in Physic. The first is concerning the Bile, which is constituted, as *Nemesius* says, not only for itself, but for other Purposes; for it helps Digestion, and contributes to the Expulsion of the Excrements; and therefore it is, in a manner, one of the nourishing Powers; besides, as a vital Faculty, it imparts a Sort of Heat to the Body. And, for these Reasons, it seems to be made for itself; but, because it purges the Blood, it seems to be formed for the sake of the Blood. Here, says the Editor, the System of the Bile is plainly and accurately deliver'd; that very System, which *Sylvius de le Boe*, with so much Vanity, boasted he had invented himself. And, indeed, so far is true, that here is the true Foundation of *Sylvius*'s Reasoning; and if this Theory be of any Use in Physic, *Nemesius* has, I think, a very good Title to the Discovery. But there follows a much more material Point; and the Editor contends, that the Circulation of the Blood, an Invention which the last Century so much bragg'd of, was known to *Nemesius*, and described in very plain and significant Terms, which are these: The Motion of the Pulse takes its Rise from the Heart, and principally from the Left Ventricle of it: The Artery is, with great Vehemence, dilated and contracted, by a Sort of constant Harmony and Order. While it is dilated, it draws the thinner Part of the Blood from the next Veins, the Exhalation or Vapour of which Blood is made the Aliment for the vital Spirit; but while it is contracted, it exhales whatever Fumes it has through the whole Body, and by secret Passages; so that the Heart throws out whatever is fuliginous through the Mouth, and the Nose, by Expiration.

Upon this single slender Proof does he attribute this great Discovery of the Circulation to *Nemesius*; and those who have



infisted, that it was known both to *Hippocrates* and *Galen*, have full as good Arguments on their Side. I will only say this, that from this very Description, and from what the same Author says of the Liver in the same Chapter, that it ministers Nourishment to the Body by the Veins, one may demonstrably infer, that *Nemesius* had no Idea of the Manner in which the Circulation of the Blood is performed.

It must be remarked, that, from the Time of *Galen*, to the Beginning of the fifteenth Century, Anatomy made but very slow Advances. For most that the lower *Greeks* have said on this Subject, is collected from *Galen*. And the *Arabic* Anatomy must have had the same Source, as Dissections of human Bodies, we are told, were not permitted by the *Mahometan* Religion. The Books of Anatomy, which the *Arabians* call *Tafseerih*, most in Esteem amongst the Orientals, are those of *Ben Sina*, whom we call *Avicenna*, of *Rhazes*; and *Ebn Helwan*. *Herbelot*.

The next Anatomist which occurs worthy of Remark, is

## MUNDINUS,

a *Milanese*, according to *Douglas*, and *Freind*, who made some new, tho' rude Efforts, to improve Anatomy: About 1317, he compos'd a regular Body of that Science; and as he was a Doctor himself, interspers'd several Observations and Discoveries of his own, especially relating to the Uterus. This Book reviv'd, in some measure, the Study of Anatomy; and was so much in Vogue till the Restoration of Learning, that the Statutes of *Pavia* allow'd of no other System to be taught in their Schools.

*Mundinus*, in describing the several Parts of the human Body, specifies their Places, particular Modes of Situation, Number, Appearance, Substance, Qualities, Bulks, Coats, Ligaments, Uses, Inconveniencies, Actions, and the Disorders to which they are subject.

He treats of the Viscera pretty largely, but touches very superficially on the Nerves and Blood-vessels. He only describes the abdominal Muscles, and contents himself barely with making mention of those employ'd in Respiration.

He seems to have been a fond Admirer of the Anatomical Works of *Galen* and *Avicenna*, tho' at the same time he does not fall in with their Sentiments upon every Occasion.

He observes, that larger Veins and Arteries are distributed to the Penis and Tongue, than to any other Parts of the Body of an equal Bulk.

The Testicles of Women were, in his Opinion, full of Cavities and glandular Caruncles, in which a certain salival Humidity was generated, which was the Source or Cause of that Sex's Pleasure in Venereal Enjoyments.

He mentions, that seven Cells are found in the Matrix, the Mouth of which resembles that of a young Whelp, or, rather, that of a grown Tench; and that towards its Surface there was *Velamentum vel Pudicitia*; or, rather, as it is in some Editions, *Velamen Subtile quod in Violatis rumpitur*, a slender Covering, which is burst upon the first Coition; by this he, no doubt, meant the Hymen.

The Neck of the Uterus was, according to him, a Palm in Length, broad and dilatible, with Wrinkles, or *Rugæ*, resembling Horse-leeches, for the sake of Titillation.

He took the *Vulva* for the Extremity of the Neck of the Uterus; upon which Occasion he takes Notice of two Membranes near the Orifice of the Bladder, by which the Nymphæ are in all Probability meant.

The Duets of the Ureters into the Bladder run, according to him, obliquely, that is, between one Coat and another, that the Return of the Urine to the Kidneys might be prevented.

He calls the Valves, belonging to the Orifices of the Vessels of the Heart, *Offiola*, or small Doors.

He publish'd a Book under the Title of *Anatomie omnium humani Corporis interiorum Membrorum*, or the Anatomy of all the internal Parts of the human Body.

This Piece was printed, *Papiae*, 1478, *Fol.* *Bonon.* 1482. *Fol.* *Venet.* 1507. *Fol.* *Argent.* 1509. *Papiae*, 1512. *Quart.* *Lugd.* 1529. *Ost.* *Marpurgi*, 1541. *Quart.* *Argent.* 1513. *Quart.* *Venet.* 16mo. corrected by *Carpus*. It also appeared with *Ketham's Fasciculus Medicinæ*, Anno 1500. *Fol.*

The next Anatomical Author, we meet with, was

## JOHANNES DE CONCORIGGIO,

a *Milanese*, who dy'd in 1438. His Works were printed at *Venice* in 1515. and 1521.

## ALEXANDER BENEDICTUS

flourished about 1495. He was of *Verona*, and cultivated Anatomy. He wrote a Book under the Title of *Alexandri Benedicti. Physici Anatomie, sive de Historia Corporis humani, Libri 5.* Printed *Basil.* 1527. *Ost.* *Argentorati*, 1528. *Ost.* *Parisii*, 1514. His *Epist. Nuncupat.* was printed *Venet.* 1497. and his *Opera Medica*, *Venet.* 1535. *Folio.* *Basil.* 1539. *Quart.* & *Fol.* *Ibid.* 1549. *Fol.* His *Historia Corporis humani*, together with some of his Collections, or Apho-

risms, was printed Anno 1527. 12mo; but the Place where, is not mentioned.

He mentions, that the yellow Bile flow'd from the Gall-bladder to one particular Part of the Stomach.

He observ'd two Foramina, or little Holes, hard by the Urinary Passage in Women, which he falsely asserts to be the Orifices of Veins, and from which, he said, a certain Humour flow'd, which was not prolific.

About the same Time liv'd

## ALEXANDER ACHILINUS,

of *Bologna*. His Annotations on the Anatomy of *Mundinus* were published, together with the *Fasciculus Medicinæ Johannis de Ketam* at *Venice*, 1522. *Fol.* And his Treatise de *humani Corporis Anatomia* was published at *Venice*, 1521. *Quarto.*

He is said to have discover'd the Malleus and Incus of the internal Ear.

## JOHANNES DE KETAM

above-mentioned treats on several Anatomical Subjects. His Works are published at *Venice*, 1495. 1500. and 1522. *Fol.*

## GABRIEL DE ZERIS,

of *Verona*, flourish'd in the latter End of the fifteenth and Beginning of the sixteenth Century. His Anatomical Pieces were published *Venet.* 1502. and 1533. *Fol.* and *Marpurg.* 1537. and 1545. *Quarto*, together with the Anatomy of *Mundinus*.

## GUIDO DE CAULIACO

was a Native of *France*, and study'd at *Montpelier* under *Raymund*. He flourish'd in the Year 1263. at which Time he wrote a large Body of Surgery. His Works, under the Title of *Chirurgiæ Tractatus Septem cum Antidotario*, were printed *Venetii*, 1490. 1519. 1546. *Fol.* *Lugd.* 1572. *Ost.* 1585. *Quarto.* *Venet.* 1499. *Folio.* *Lugd.* 1559.

He first taught, that Incisions about the Eye-brows should be made in the same longitudinal Direction with the Body itself, and not in that of the *Rugæ*, or Wrinkles of the Forehead; because the Muscles which serve to move the *Supercilia*, or Eye-brows, run in the former and not in the latter Direction.

With regard to the *Os adjutorium*, or *Humerus*, he advanced some Things which had the Appearance of being new; but they may be more justly ascribed to *Galen*, the great Restorer of Anatomy, as will plainly appear from his Works.

I have now trac'd Anatomy from its Origin, to the fifteenth Century. But the Industry of the Revivers of this Science in the sixteenth, which had, from the Time of *Galen*, lain in a great Degree uncultivated, will furnish us with more frequent and ample Discoveries, tho' it must be confessed, that many have been pretended to be made, which were known even in the Infancy of Anatomy.

## JACOBUS BERENGARIUS CARPENSIS

was the great Reviver of Anatomy. He is distinguish'd with the Epithet *Carpensis* from the City *Carpi* in *Italy*; he is likewise called *Carpus* alone, and *Jacobus Carpus*, and by *Fallopis*, *Jacobus Carpenfis*. But these three last-mention'd Names he assumes to himself in his *Isagoge*. He flourish'd in the Year 1522. and was Professor of Anatomy and Surgery in the University of *Pavia*. His Commentaries upon the Anatomy of *Mundinus* were printed *Bononiæ*, 1521. *Quarto*. His Anatomy was printed *Bononiæ*, 1523. *Quarto.* *Coloniæ*, 1529. *Ost.* *Argentorati*, 1533. *Ost.* *Venet.* 1535. *Quarto*. His Practical Anatomy was translated into *English* by *H. Jackson*, and printed at *London*, 1664.

He was the first that us'd Unction with Quicksilver, for the Cure of the *Lites Peneceæ*, and became immensely rich by his Practice that way.

He first discover'd the *Ephystis*, or Appendix of the *Intestinum Cæcum*, which he calls the *Additamentum Celi*, and under that Name describes it at Length.

He denies that the seven Cells of *Mundinus* are to be found in the Uterus, and admits only of one Cell or Cavity.

He was acquainted with the sublingual Glands, and their Duets. He thinks that the three Divisions in the *Musculi Recti* of the Abdomen are the Tendons of three Muscles, serving for the Contraction of the Abdomen.

He first discover'd Caruncles in the Kidneys, resembling the Nipples of a Breast.

That Line which now goes by the Name of the *Linea Alba*, was by him called the *Linea Centralis*, because it reach'd along the Middle of the Belly.

He thought that the *Processus Mamillares* were not, on account of their excessive Softness, to be reckon'd among the Nerves.

Concerning the Ear he has these Words: "Two little Bones are adjacent to this Membrane, [he means the Tympanum] which, being mov'd by the undulating Air, mutu-

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ally strike each other, and, by their Motion, excite what we call *Sound* in the Ear. This is the real Structure of the Parts, which, though very remarkable, has yet been observed by few.

He is therefore unjustly thought by some to be the Discoverer of these little Bones, since he assigns the same Use to them that others have done before him; and, which is still more, he nowhere pretends to be the Discoverer of them.

## JASON A PRATIS, OR PRATENSIS,

was a Native of *Zeland*, and flourish'd in the Year 1520. His two Books *De Uteris* were printed *Antwerp*. 1524. *Quarto*. *Amstelredami*, 1657. 12mo. His Book *De Partuiente & Partu* was printed *Antwerp*. 1527. *Oct.* *Amstelred.* 1657. 12mo.

## ANDREAS LACUNA

was a Native of *Segovia* in *Spain*, and flourish'd about the Year 1552. His *Anatomica Methodus* was printed *Parisi*. 1535. *Octavo*. His *Epitome Galeni Pergameni Operum, in quatuor Partes digesta*, was printed *Basil.* 1551. *Folio*. *Ibid.* 1571. *Folio*. *Argentorati*, 1609. *Folio*. *Lugd.* 1553. 16mo. 4 *Fol.*

When talking of the Tongue, he expresses himself thus; " 'Tis a Circumstance which well deserves our Consideration, that Nature only bestow'd a *Frenum*, or *Bridle*, upon the Tongue and Privy Parts, as if she had intended, that Men should be modest in the Use of both. "

When talking of the Lips, he maintains, that " they are cover'd with the inner Coat of the Stomach: And this, says he, is the Cause, why, when a Nausea affects the Stomach, the Lips become tremulous, and preface a Discharge by Vomit. "

When talking of the Stomach, he says, that " its Orifice, which is called the *Pylorus*, is not in its Bottom, but a little higher, that the Part of the Food, which is not sufficiently concocted, may not slip down into the Intestines till it is so. " He likewise ascribes to it a *Constrictory Muscle*.

" He denies, that, in a good Habit of Body, the yellow Bile is sent into the Stomach, because it is hurtful to its Functions; whereas the black Bile is friendly and beneficial to them; and tho' in the Stomach there are no biliary Pores, yet bilious Vomitings frequently happen, because the yellow Bile is convey'd by a large Passage into the *Intestinum Jejunum*, which lies next to the Stomach; and hence it happens, that that Part, into which it is inserted, is always observed empty; and if at any time it is irritated by the Acrimony of the Bile, it throws it out from it. Now as the yellow Bile is naturally light and active, it oftentimes flies upwards, and destroys the Functions of the Stomach, unless it be forthwith discharged by Vomit. "

The *Intestinum Cæcum*, according to him, hangs like a sort of fill'd Stomach, in the Bottom of which there is no Orifice; but it has two Orifices, one by which it receives, and the other by which it discharges.

## NICOLAUS MASSA.

This Anatomist was a *Venetian* by Birth, and flourish'd about the Year 1530. His *Liber Introductorius Anatomie* was printed *Venet.* 1536. *Quarto*. 1559. *Quarto*. His *Epistolæ Medicinales* were printed *Venet.* 1542. *Quarto*. 1550. *Quarto*. 1558. *Quarto*.

*Riolanus*, and some others seduced by his Authority, ascribe the Invention of the *Musculi Pyramidales* to him. But they have nothing to support their Opinion; for that Muscle which is taken for the Pyramidal Muscle of *Massa*, is more properly called the *Cremaster Muscle*, which it really is.

The *Septum Scroti*, which some Moderns boast of as their own Discovery, is elegantly described by him in these Words: " This Bag [he means the Scrotum] has, besides, an intermediate Membrane, which divides the Right Testicle from the Left, so that the Scrotum has two Sinuses. Hence it happens, that it is sometimes distended on one Side by a Distension of Humours, or a falling down of the Intestines, whilst the other Side remains in its natural State. "

He deny'd the Existence of the *Panniculus Hymeneus*, which, according to *Mundinus*, block'd up the Mouth of the Matrix; and in its stead maintain'd, that some *Rugæ*, mutually connected with Veins and Ligaments, were relaxed and broke, when a Woman was deflower'd.

He describ'd the Duets of the renal Caruncles, thro' which the Urine is strain'd, and which are now call'd the *Tubuli Urinarii*. *Carpus*.

Concerning the Anatomy of the Seminal Vessels, he expressly affirms, that the spermatic Vein and Artery do not at all meet, but pass separately to the Testicles.

He demonstrates, that the Substance of the Tongue is muscular, and that it is cover'd with a double Skin.

He also asserted, that the Neck of the Uterus was muscular, and endow'd with a voluntary Faculty. He takes the *Mem-*

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*brana Frontis Carnosa* for a real Muscle; and asserts, that the *Officula auditus*, which strike the Tympanum of the Ear, were known to Anatomists in the Time of *Achillius*.

## JOHANNES GUINTERIUS.

This Anatomist is styl'd *Andernacus*, because he was born in *Andernacum*, a Town of *Ulich* on the *Rhine*, in the Year 1487. His Works, under the Title of *Anatomicarum Institutionum ex Galeni Sententia, per Johannes Guinterium Andernacum Medicum, Libri quinque*, were printed *Basil.* 1536. *Octavo*. 1539. *Quarto*. *Patavii*, 1558. *Oct.* *Wittenberg*, 1613. *Octavo*. And his Piece *De Medicina veteri & nova*, was printed *Basil.* 1571. *Fol.* 2 *Vol.*

He first call'd that glandular Body which is situated in the Middle of the Mesentery, and consists of a soft and yielding Substance, the *Pancreas*.

He boasts of his being the Discoverer of the Complication of the spermatic Vein and Artery, a little before their Insertion into the Testicles; which, he says, was never observ'd before him; and which, he adds, he shew'd to *Vesalius*, when he was studying Anatomy at *Paris*.

The Uterus, he said, had two Sinuses, corresponding to the Number of the Breasts, not divided by an intermediate Membrane, but terminating in one narrow Cavity, which he call'd the Neck of the Womb, which Neck, he said, terminated at the *Sinus Muliebris*, which he also call'd the *Pudendum*.

He also admitted of the *Membrana Allantois*.

He asserts, that the Muscle which surrounds the Neck of the Bladder, consists of transverse Fibres, and has various Offices; for, first, it shuts the Bladder, and then, after the Discharge of the Urine, contracting itself every Way, it propels what remains in the *Meatus Urinarius*.

## LUDOVICUS BONNACIOLUS.

This Anatomist was a Native of *Ferrara*, and flourish'd about the Year 1530. His *Emneas Muliebris* was published *Argentini*. 1537. *Octavo*.

He first described the Nymphæ and the Clitoris as separate and distinct Parts, which had not been distinguished by the Antients.

He said, that the Mouth of the Uterus resembled in Figure the Glans of the Penis. The Testicles, according to him, were not perfectly spherical, but resembled a Sphere gently compressed on each Side.

## JOHANNES FERNELIUS.

This Author is likewise styl'd *Ambianus*, because his Father was a Native of *Ambiens* in *France*; but he himself was born at *Clermont*, in the Year 1506. according to *Goelicke*; but according to *Douglas*, in his *Bibliogr. Anat. Specim.* in the Year 1485: But as this is a Controversy of too trifling a Nature to deserve Regard, we shall only observe, that he was a Man of extensive Learning, and so successful in his Practice as a Physician, that he became the Oracle of the Age in which he lived. But as he was no profess'd Anatomist, and only casually interspersed some Descriptions of particular Parts of the human Body, with his Physical Writings, he comes not properly under our present Consideration. His Book *De Naturali Parte Medicinæ*, was published *Parisi*. 1542. *Venet.* 1547. *Octavo*. *Lugd.* 1551. 16mo. *Lutet.* 1554. *Fol.* *Mag.* And his *Universa Medicina, sive Opera Medicinalia*, was printed *Venet.* 1564. *Quarto*. *Lutet.* 1567. *Fol.* *Francos.* 1592. *Fol.* 1603. *Octavo*. *Hannoviae*, 1610. *Fol.* *Parisi*. 1602. *Fol.* *Lugd. Bat.* 1645. *Octavo*. 2 *Vol.* *Trajecti ad Rhenum*, 1656. *Quarto*. *Genev.* 1644. *Oct.* 1679. *Fol.* 1680. *Fol.*

He advanced nothing remarkable, in point of Anatomy, unless that he deny'd the Peritonæum to be perforated with small Holes.

## LUDOVICUS VASSIUS.

This Physician was a Native of *Catalonia*, and the Scholar of *Sylvius*. As he observed, that what *Galen*, and other learned Men, had wrote upon the Subject of Anatomy, was so scatter'd up and down, that it was not easy to come at it, he resolv'd to redress this Grievance, by compiling certain Tables to pave the Way, as it were, to that Divine Work of *Galen*, *De Usu Partium*; and, indeed, the Utility of these Tables is enhanced by this Circumstance, that there is scarce a single Part of the human Body, how minute soever it be, that is not described in them. They were published under the Title of *Ludovici Vassii Catalaunensis in Anatomien Corporis humani Tabulae Quatuor*, *Lutet.* 1540. 1541. 1553. *Fol.* *Venet.* 1544. *Oct.* *Lugd.* 1560. *Oct.* A French Edition of them was also printed at *Paris*, 1555. *Octavo*.

## " ANDREAS VESALIUS.

This Anatomist was born at *Brussels*, a Town of *Brabant*, in the Year 1514. His superior Genius, in Conjunction with his indefatigable Application and Industry, soon raised



raised him to such a Pitch of Anatomical Knowledge, as render'd him at once the Ornament of his own, and the Admiration of future Ages. As it is the Fate of all Sciences to have their Votaries blindly and superstitiously attached to the Opinions of some particular Author of Note, till some daring Genius ventures to think for himself, and endeavours to make Authority fall a Sacrifice to Truth; so the Anatomists, at the Time *Vesalius* appeared, were so much blindfolded with the Authority of *Galen*, that to have contradicted him had been look'd upon as Heresy. *Vesalius*, regardless of this unhappy State of Things, ventur'd to expose the Mistakes, and correct the Errors, committed by *Galen*, both in Physic and Anatomy, but more especially the latter. But as there is a Principle of Emulation interwoven with the very Frame and Make of human Nature; so it must follow, that uncommon Merit must create, if not Enemies, yet at least Censurers, of Note and Distinction. This was the Fate of *Vesalius*: Some distinguish'd Authors have charged him with Ignorance, Want of Honour, Vain-glory, and Plagiarism.

*Piccolhomini*, an Author of considerable Note, talks of him in this Strain: "When a proper Opportunity occurs, I shall sufficiently shew, that whatever is good in that large Volume wrote by *Vesalius*, *De Re Anatomica*, is borrow'd from *Hippocrates*, *Aristotle*, *Galen*, and some others of the Antients, without the Author's so much as mentioning their Names; and that whatever Things are false and erroneous, which, indeed, are very many, are the Product of his own Ignorance, and Impetuosity of Temper; and tho' he has secretly stole many Things from *Galen*, yet he never mentions his Name, unless it be with a View to find Fault with him."

The Censure of *Caius* upon *Vesalius* is still more remarkable. "We both lodg'd, says he, in the same Quarters at *Padua*, at the Time when *Vesalius* wrote and prepar'd his Book *De Corporis humani Fabrica*. One *Aldinus Junta*, a *Venetian* Printer, employ'd him to correct the Anatomical Works of *Galen*, both *Greek* and *Latin*; and for that Purpose several Emendations were sent him; but he render'd *Galen's* Text more corrupt than it was before, with no other View than that he might have something to find Fault with."

And tho' *Fallopini* owns him to be the Father of Anatomy, he yet carps at his Opinions almost every-where.

*Columbus* talks thus of him: "I can't but be surpris'd, that he, who on all Occasions lashes and chastises *Galen* for his having describ'd Apes and Brutes, instead of Men, should yet himself be so ridiculous as to describe the Larynx, the Tongue, and the Eyes of Oxen, and not of Men, without so much as ever giving a Caution with regard to it. He also ascribed Muscles to the Epiglottis, which are only found in Brutes." *Eustachius* has also observed of him, "That he described and delineated a Dog's Kidney instead of a Man's."

*Arantius* styles him the common Master of Anatomists, but accuses him of having delineated the Pudenda of Brutes, on account of the Scarcity of the Carcases of Women; whereby it happen'd, that *Valverde*, and those who immediately followed him, taking Things upon Trust, split upon the same Rock.

*Johan. Bapt. Carcan. Leon.* speaks of him thus: "It is surprising, that *Vesalius*, whilst he accuses *Galen*, the Chief of Physicians and Anatomists, of so many Blunders and Errors, should yet himself be so justly liable to Censure in the same respect: And, what is still worse, by these his Accusations, he seems widely to have mistaken *Galen's* Meaning; ascribing to him Things he never so much as dream'd of, and affirming that he deny'd those very Things which he insisted on in the most distinct and explicit manner; and whilst he so often wonders at, and finds Fault with, *Galen*, he himself deserves to be wonder'd at, and found Fault with."

"The Style of *Vesalius*, says *Riolanus*, is ridiculously pompous, and his Periods by far too long; so that he generally throws a greater Degree of Darkness upon things that are of their own Natures too obscure. Besides, I suspect, that the *Latin* of that Book is none of *Vesalius's*, but the Language of some other learned Man, since his *Chirurgia Magna*, his *Examen Observationum Fallopii*, and his little Book *de Radice Chinæ*, are wrote in a quite different Style:" And for this Reason, *Fallopini* thinks that his great Work is only fit for those who are well advanced in Anatomical Studies.

But these sharp and ill-humoured Censures have had not more Influence upon the Fate of *Vesalius's* Works, than a gentle Breeze of Wind would have upon *Mount Caucasus*, or *Athos*; for his Writings ever have been, and for ought I know, ever will be, esteem'd, so long as Anatomy and Physic are thought necessary to the Good and Welfare of Mankind; and that is, so long as human Nature endures.

His Work *De humani Corporis Fabrica*, was printed *Basil* 1543. *Fol.* *ibid.* 1555. *ibid.* 1563. *Venet.* 1568. *Fol.* *Min.* *ibid.* 1604. *Fol.* His *Anatomia* was printed *Francfurti*, 1604-1632. *Atq.* *Lugd.* 1552. 12mo. His *Epitome de humani Corporis Fabrica*

*Librorum*, was printed *Basil.* 1543. *Fol.* *Coloniæ Agrippinæ.* 1600. *Parif.* 1560. 8vo. *Wittebergæ*, 1582. 8vo. *Londini*, 1642. *Fol.* *De modo propinandi Radicis Chinæ Decoctum*, was printed *Basil.* 1546. *Fol.* *Lugduni*, 1547. 16mo. His *Examen Anatomicarum Observationum Gabrielis Fallopii* was printed *Venetiis*, 1564. 4to. The last Edition was *Vesalii Opera omnia*, *Lugdun. Batav.* 1725. *Fol.* See *Vander Linden de Scriptis Medicis*, and *Douglas's Bibliothecæ Anatomicæ Specimen*.

As for the Discoveries, with which *Vesalius*, by his indefatigable Labour and Industry, enrich'd Anatomy, if I was to enumerate them all, I should not only find the Task difficult in itself, but inconsistent with my present Design; However, not to pass them over altogether, he maintain'd, that "The Penis" was connected at the Union of the *Offa Pubis*, by a certain small Ligament." This Ligament was delineated by *Casseri*, and our Countryman *Cowper* lately described and delineated it under the Name of *Ligamentum Penis Suspensorium*. We are also indebted to *Vesalius* for the first Delineation of the *Auditus Offa*, or Bones appropriated to Hearing.

He first discovered, that the Optic Nerve was not inserted directly in the Centre of the Eye, but a little to one Side. He likewise maintain'd, that the *Ligamentum Teres Femoris* was not inserted into the Middle of the Head of the Femur, but rather into the Side of it. I do not pretend to give the Life of *Vesalius*; for that would require a Volume by itself: My Design was only to shew the State of Anatomy, when he appear'd, which, I hope, may be sufficiently known from the preceding Hints.

CAROLUS STEPHANUS.

This Physician was a Member of the Faculty at *Paris*, and, by the Assistance of *Riverius*, made such Advances in Anatomy, as to acquire Credit enough to introduce *Galen's* Doctrine, which was unknown to the Age in which he lived. He also enriched Anatomy with some Discoveries, such as the membranous Apophysis within the Liver, at the Origin of the Vena Cava, left the Blood, elaborated there, should regurgitate. He first of all maintain'd, that the *Oesophagus*, and great Artery, passed down through different Holes, though they lay very near to one another, which was quite the reverse of what *Galen* asserted. He says, that the *Membrana Carnosa* is visible in melted Fat; for, if you melt Fat before the Fire, you will observe a thick Membrane remaining. He accurately described the *Septum Scroti*, first observed by *Massa*, and gives it the Names of *Diaphragma* and *Septum*. His Works under this Title, *De Dissectione Partium Corporis humani Libri tres, una cum Figuris & Incisionum Declarationibus a Stephano Riverio Chirurgico compositis*, were printed *Parif.* 1545. *Fol.* and, in *French*, *Paris*, 1546. *Fol.*

This in general is to be remark'd with regard to his Plates, that they are imperfect, and therefore not to be trusted to.

He has six Representations of a human Skeleton, exhibiting the anterior, and posterior Views of the Body. The first and second of which represent only the Bones, the third and fourth the more considerable Ligaments, and the fifth and sixth the Origins and Insertions of the several Muscles. He has also two other Representations of the human Skeleton, exhibiting the Course of the Nerves. Two Figures represent the anterior, and posterior Parts of the Body, covered with their respective Muscles, and every Muscle is besides delineated by itself. He has likewise a Delineation of the Vena Cava and Aorta. He has also given a View of the Body as cover'd with the Skin, illustrated with the genital Parts in Women, in eight Figures; and towards the End of his Work, laid down the several Parts of the human Body in the same Order in which they occurred to him in Dissections.

THOMAS VICARY.

This Author was a Citizen and Surgeon of *London*, and this seems to be the most remarkable Circumstance in his Character, that he was the first who published any thing upon Anatomy in the *English* Language. His Book is called *The Englishman's Treasure, or the true Anatomy of Man's Body*; and was printed *London*, 1548. *ibid.* 1577. 8vo. *ibid.* 1587. 4to. *ibid.* 1633.

THOMAS GEMINI.

This Man was a Foreigner, but settled in *London*, in Quality of an Engraver in Copper. He only comes under our present Consideration, for his having first engrav'd the Figures of *Vesalius* on Brass, two Years after they were done in Wood in *Germany*. Though he was a skilful Artist, and a great Master of his Business, yet he is highly to be blam'd for suppressing the Name of *Vesalius*, and affirming, that the Work was the Product of his own Industry and Labour. By the Assistance of Mr. *Udal*, and other learned Men, (for he himself knew neither *Latin*, *English*, nor Anatomy) he adorned his Plates with *Vesalius's* Descriptions. There are three Editions of this Book, one in the Reign of *Henry the VIIIth*, another under that of *Edward the VIth*, and a third under *Queen Elizabeth*.

The



The Book is published under the Title of *Compendiosa totius Anatomiae delineatio Aere exarata per Tho. Geminum, Londini, 1545. Fol.* and then in *English, London, 1553. Fol. ibid. 1559. Fol.*

JACOBUS SYLVIVS.

This Anatomist was born at *Amiens* in *Picardy*, in the Year 1478. and was afterwards the Scholar of *Tagaultius*. He was a great Admirer of *Galen*, and an inveterate Enemy to *Vesalius*. He hath enrich'd Anatomy with many new Discoveries; and, particularly, he was the first who discovered those Valves which he calls *Epiphyses*, or membranous *Epiphyses*, in the Mouths of the *Vena Azygos*, the jugular, brachial, and crural Veins; as also at the Trunk of the *Vena Cava*, which rises from the Liver.

*Fabricius ab Aquapendente* unreasonably claims the Glory of this Discovery; but he only described them more accurately, and from their Use and Structure gave them the Names of Valves, which to this Day they retain.

He was also the first who observed the *Musculus Femoris Quadratus*, and rank'd it among the *Musculi Quadrigemi*, as he calls them.

He accurately describes the Origin of that Muscle in the Thigh, which is call'd the *Musculus Rectus*.

He maintain'd, that the Tendons of the *Musculus Plantaris*, and *Palmaris*, were wanting in some Subjects.

But what is surprising is, his receding from his Master *Galen*, in assigning the Origin of the *Musculus Rectus Abdominis*.

He mentions the large fleshy Substance in the Sole of the Foot, which runs out to the Sides of the Toes, and takes Notice of the *Musculi Pyramidales* arising from the Os Pubis, and calls them the *Musculi Succenturiati*; and indeed he may deservedly be said to be the first Discoverer of them.

He also takes Notice of the Glands at the first Division of the *Aspera Arteria*, as also of two Glands at the Root of the *Larynx*, and of the glandular Substance of the *Pylorus*.

His *Opera Medica*, &c. were printed *Coloniae Allobrogum*, 1630. Fol.

His *Depulso Vesani Cujusdam*, &c. was printed *Parisi*. 1561. 8vo.

His Piece de *Mensibus Mulierum*, *Venet.* 1556. 8vo. *Basil* 1556.

His Piece, intituled, *Ordo & Ratio Ordinis in Legendis Hippocratis & Galeni Libris*, *Parisi*. 1561. 8vo.

MICHAEL SERVETUS.

This Physician was a Native of *Spain*, and a Man of an uncommon Genius. Happy had it been for him, if he had confin'd his Researches within the Bounds of Physic and Philosophy; but unluckily he went beyond his Sphere, and plung'd himself into the deepest and most abstruse Points of Theology: For he publish'd a Piece against the mysterious Doctrine of the Trinity, and that too at a very unlucky Juncture, I mean the Dawn of the Reformation. Upon this *Calvin*, the great Champion of that Cause, us'd his Interest to do him all the Injury he could. And as true Christian Zeal had in these Days degenerated into a most hellish and most execrable Spirit of Persecution, he found it no hard Task to get him condemned to the Flames; and the Sentence was accordingly put in Execution at *Geneva*, in the Year 1553. His seven Books de *Trinitatis Erroribus* were printed at *Basil*, 1531. And his *Christianismi Restitutio* was printed at *Basil*, 1553. Though these Pieces made their Author fall an unfortunate Victim to a Spirit of Persecution then prevailing, yet, as a Physician, they will perpetuate his Name to all succeeding Ages; since in the fifth Book of the former of these Works, which treats of the Holy Spirit, those Passages were found, which amount almost to a Demonstration, that he was better acquainted with the Doctrine of the Circulation of the Blood, than any preceding Author.

"There are," says he, "in the human Body, Spirits of three different Kinds, the natural, the animal, and the vital, which are really not three, but two distinct Spirits. The vital is that which is communicated by Anastomoses from the Arteries to the Veins, in which it is called natural. The Blood therefore is first, whose Seat is in the Liver and Veins. The vital Spirit is second, whose Seat is in the Heart and Arteries. The animal Spirit is third, which is like a Ray of Light, and has its Seat in the Brain and Nerves."

Now to understand how the Blood is the Life, he says, "We must first understand the substantial Generation of the vital Spirit, which is compounded of, and nourished by, inspired Air, and the subtilest Part of the Blood. The vital Spirit has its Original in the Left Ventricle of the Heart, by the Assistance of the Lungs, which chiefly contribute to its Generation. It is a subtile Spirit wrought by the Force of Heat, of a florid Colour, having the Power of Fire; so that it is a sort of shining Vapour made of the purer Part of the Blood, containing within, in itself, the Substance of Water, Air, and Fire. It is made in the Lungs, by the Mixture of inspired Air with that elaborated subtile Blood, which the Right Ventricle of the Heart communicates to the Left,"

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"Now that this Communication is not made thro' the Septum of the Heart, as is commonly believed, but the subtile Blood is very artificially agitated by a long Passage through the Lungs from the Right Ventricle of the Heart, and is prepared, made florid by the Lungs, and transfused out of the arterious Vein into the venous Artery; and at last, in the venous Artery itself, it is mixed with the inspired Air, and by Expiration purged from its Diags. And thus at length the whole Mixture is attracted, by the Diastole of the Heart, into the Left Ventricle, being now a fit Substance out of which to form the vital Spirit.

"Now that this Communication and Preparation is made by the Lungs, is evident from the various Conjunction and Communication of the arterious Vein with the venous Artery in the Lungs; the remarkable Largeness of the arterious Vein does likewise confirm it, since it would never have been made of that Form and Bulk, nor would it have emitted so great a Quantity of very pure Blood out of the Heart into the Lungs, if it had been only for their Nourishment; nor would the Heart have been this way serviceable to the Lungs, since the Fœtus in the Womb is otherwise nourished, by reason of the Closeness of the Membranes of the Heart, which are never opened till the Birth of the Child, as *Galen* teaches; so that the whole Mixture of Fire and Blood is made in the Lungs, where there is a Transfusion out of the arterious Vein into the venous Artery, which *Galen* took no Notice of."

Afterwards he says, "That this vital Spirit is transmitted from the Left Ventricle of the Heart into the Arteries of the whole Body; so that the more subtile Parts get upwards, where they are yet more refined, especially in the Plexus Retiformis, which lies in the Base of the Brain, where, from vital, it begins to become animal, and approaches to the proper Nature of the rational Soul."

The Circulation of the Blood is a Discovery of such Importance, that every one who gives the remotest Hints of it, has some Party to take him by the Hand, and canonize him as the first Discoverer. Thus *Hippocrates*, *Galen*, and a great many more, have had their respective Champions in this Particular, who have pronounced boldly either one way or the other, just as Whim and Caprice directed them. But as such a Turn of Mind is a Disgrace to Philosophy, and a Reproach to human Nature, whose Glory and Dignity consist in shaking off Prejudice, and adhering inviolably to Truth, where-ever it can be found, so we will not absolutely pronounce, that *Servetus* knew the Doctrine of the Blood's Circulation; but certain it is, that the first Step made to this noble and useful Discovery was the finding, that the whole Mass of Blood passes thro' the Lungs by the Pulmonary Artery and Vein. Now that *Servetus* had a pretty distinct Idea of this Matter, is sufficiently plain from the foregoing Passages; but he talked in too vague and indetermined a manner, to be esteem'd a full and uncontested Discoverer. The Glory of this was reserved for our own Country, which gave Birth to the divine *Harvey*, who first improv'd those, and the like noble Hints, into a rational and consistent Theory, truly useful to Mankind, and absolutely necessary to farther Improvements in rational Medicine.

REALDUS COLUMBUS.

This Anatomist was a Native of *Cremona*; he flourish'd about the Year 1544. and was intimate with *Vesalius*, whose public Lectures he had frequently an Opportunity of hearing. He is by some charg'd with want of Gratitude to *Vesalius*, from whom he is said to have stole every thing that is valuable in his own Works; but others maintain, that he had a clearer Idea of the Parts than *Vesalius*, and described them more accurately; and 'tis certain, that his *Latin* is very pure.

He was the first who wrote distinctly and accurately about the Caruncles in the *Vagina Muliebris*.

He was the first who made mention of the Duplication of the Peritonæum; and he affirmed, that the Pleura was everywhere double. He assumes to himself the Discovery of the *Tunica Imminata* of the Eye, and accuses all his Predecessors of Ignorance in that Point. But *Douglas* thinks, that the Coat of the Eye, which *Galen* describes under the Name of the *Tunica Sexta*, is the very Coat he means.

He also boasts of his having first discovered the third Bone subservient to Hearing.

He affirms of *Vesalius*, that he not only described, but publicly dissected, the Tongue, the Larynx, and the Eyes of Oxen, instead of those of Men; and that he himself was an Eye-witness of the Imposture.

As *Galen* and *Vesalius* exceeded in the Number of the Muscles of the Eye, so *Columbus* is as remarkably deficient in that Point, since he determines, that there are only five.

The Use, by him ascribed to the Lungs, deserves to be taken Notice of; for he thinks, that they were bestow'd on Animals for this Purpose, that the Blood and vital Spirit might be prepared and generated in them; for he thinks, that the Blood, being attenuated by Elaboration in the right Sinus of the Heart,



Heart, is carried through the *Vena Arteriosa* to the Lungs, where by their continual Motion it is agitated, still farther attenuated, and mixed with that Air, which is drawn in through the Nostrils and Mouth, and carried through the Branches of the *Aspera Arteria* to the Whole of the Lungs, which Air is itself prepared by this Collision; so that the Blood and Air, being thus mix'd, are received into the Branches of the *Arteria Venosa*, and at last carried through the Trunk itself to the Left Ventricle of the Heart, from which they are carried through the Aorta in all Directions, to all the Parts of the Body.

Since this Opinion is largely insisted upon by *Michael Servetus*, we have Reason to suspect, that *Columbus* borrowed it from him. This also *Galen* had advanced long before *Servetus*, where he says, that when the Thorax is contracted, the *Venous Arteries*, which are in the Lungs, being on all hands pent up, and compressed, quickly throw out the Spirit contained in them; but that they receive some Portion of the Blood from the *Vena Arteriosa*, by minute and invisible Orifices.

His Works were printed under the Title of *Realdi Columbi in almo Gymnasio Patavino Anatomici celeberrimi, de re Anatomica Libri Quindecim, Venetiis, 1559. Fol. Paris. 1572. 8vo. Lugd. Batav. 1667. 8vo.*

JOHANNES VALVERDA.

This Physician was a Native of *Spain*, and, in his Anatomical Studies, the Scholar of *Realdus Columbus*. He is said to have carried the Knowledge of Anatomy from *Italy* to *Spain*. He published the Tables of *Vesalius*, with their Descriptions somewhat enlarged in the *Spanish* Language, and added four new Figures to them; the first of which exhibits the Direction and Progress of the Fibres which compose those Muscles, that cover the Fore-part of the Body. The second represents a Woman big with Child. The third and fourth give us a Prospect of the cutaneous Veins scattered up and down the anterior, and posterior Parts of the Body. But he is an Author of too small Note to be insisted upon at greater Length. Since the greatest Character we find given him is, that he was rather to be commended for his Industry in propagating Anatomy, than for his writing well upon any Part of it.

GABRIEL FALLOPIUS.

This Anatomist was born at *Modena* in *Italy*, in the Year 1490. His Skill in Physic and Anatomy has rendered him universally admired. *Douglas* in his *Bibliographia Anatom.* has beautifully drawn his Character, when he says, that he was in *docendo maxime methodicus, in medendo felicissimus, in secundo expeditissimus*, Most judicious and methodical in his Method of Teaching, most successful in his Practice, and most expeditious in his Dissections. He died in the 73d Year of his Age, in the Year 1563, after having illustrated Anatomy, and enriched it with several things unknown to former Ages. He affirms in particular, That the *Musculi Pyramidales* were first discovered by him; and he is of Opinion, that the Bladder is compressed by them; but this was observed before him by *Galen*, and *Jacobus Sylvius*.

He boasts of his being the first who solved the perplexing Difficulty of *Oribasius*, or rather of *Galen*, concerning the Motion of the upper Eye-lid, after the *Musculus Orbicularis* is cut off; for he affirms, That in the Year 1553, he discovered the Muscle which raises the upper Eye-lids. But *Galen* himself solves this Difficulty, at a Time when he was become venerable for his Age and Experience, that is, when he digested the *Commentaries de Locis male affectis*, as will evidently appear to any one who reads them. Besides, *Avicenna* clearly describes this Muscle, *Lib. 1. Sum. 2. de Musculis, Cap. 5.* The same Muscle is likewise accurately described by *Realdus Columbus* in his Anatomical Works, *Anno 1550.*

Though he is esteem'd the Discoverer of that seminal Duct, which he calls the *Tuba Uteri*, whose Extremity, in which there is a large Hole, is lacerated and fringed, as it were, like the Edges of old work'd Linen Cloth; yet it is excellently described by *Herophilus*, and *Rufus Ephesius*, who lived long before him.

By the true Neck of the Womb, he means all that Part from its internal Orifice, till it begins to enlarge itself, and grow wider. But the Whole of that Passage into which the Penis enters, is by him called *Sinus & Pudendum Muliebre*.

His *Observationes Anatomicae* were printed *Venet. 1561. 8vo. Paris. 1562. 8vo. Helmstadtii, 1588. 8vo.* His *Expositio in Librum Galeni de Offibus* was printed *Venet. 1570.* His *Lectiones de partibus similibus humani Corporis*, were published *Noribergae, 1575. Fol.* His *Compendium de Anatome humani Corporis* appeared *Patavii, 1585. 8vo. Venet. 1571.* His *Opera Omnia, Lincii, 1584. Fol. Francof. 1600. Fol.*

AMBROSIVS PARÆUS. *Ambroise Paré.*

This Anatomist was a Native of *France*, and acquir'd a great Character rather for his uncommon Success in the Practice of Surgery, than for any Figure he made in Anatomical Learning.

The Muscles, which *Sylvius* calls *Succenturiati*, are by him styled the *Triangulares Pubis*, or the *Accessorii*. He first described the *Membrana Musculorum Communis*, or *Common Membrane of the Muscles*. His Works, under the Title of *Anatomie universelle du Corps humain*, appear'd at *Paris, 1561. 8vo.* and afterward in a *Latin Version Paris, 1561-1582. Fol. Francof. 1593-1612. Fol.*

BARTHOLOMÆUS EUSTACHIUS.

This Anatomist was a Native of *Italy*, and a Man of very extensive Learning. His Tables, 'tis to be presumed, have made his Character, as an Anatomist, sufficiently known where Learning is countenanced, or even heard of. He enriched Anatomy with several Discoveries; "for he first discovered " the Glands which lie upon the Kidneys."

He finds Fault with *Vesalius* for describing, dissecting and delineating the Kidney of a Dog instead of that of a Man, without so much as taking Notice of the Difference. He maintained, that the Duct of the Renal Veins is oblique, and not transverse, as it is delineated by *Vesalius*. He exhibited, in a most beautiful Figure, the *Canaliculi Urinarii*, which he compares to very small Hairs; but which were before described by *Nicolaus Massa*. In his *Examination of the Bones*, he says, the true Structure of the Viscery Nerve was first discovered by himself; and adds, that when it is immersed in Water, it is distended and expanded into a large Membrane, like a very thin Linen Cloth.

Concerning the third Bone of the internal Ear, called *Stapes*, he has these Words: "I am conscious to myself, that without " either Instruction or Information, from any one, I knew " that Bone long before they wrote, and that I shewed it to " many in *Rome*, and caused it to be engraved on Copper."

He was the first who gave an accurate Description of the *Thoracic Duct*, or the Passage by which the Chyle is conveyed to the Heart, which, he says, in Horses, resembles a white Vein, and has a semi-circular Mouth, opening into the internal Jugular Vein.

He was the first who observed the Valve at the Orifice of the *Vena Coronalis* in the Heart.

He boasts of having first discovered, and exactly described, that Valve, which is by some called the *Valvula Nobilis*, in the *Vena Cava*, near the right Auricle of the Heart, tho' *Jacobus Sylvius* seems to have observed it before him. In his *Treatise de Renibus*, he makes mention of the Glands of the *Larynx*. His *Opuscula Anatomica* were printed *Venet. 1563. 4to.* His *Libellus de Dentibus, Venet. 1563. 4to.* His *Epistola Nuncupatoria, Romæ 1562.* His *Opuscula cum Annotationibus, Venet. 1574. 4to. Lugd. Batav. 1707. 8vo.* and his *Tabulae Anatomicae* were published by *Jo. Maria Lancisi, Romæ, 1714. Fol.* and afterwards *Amstelodam. 1722. Fol.* then *Romæ, 1728. Fol.*

His Notes upon *Erotian* were published *Venet. 1566.*

JOHANNES HALL.

This Author was a Surgeon in *London*, and amongst the first who wrote any thing upon Anatomy in the *English* Language. Having never seen his Works, we know of nothing for which he is so remarkable as the gaudy and pompous Title of his Book, which runs thus: *A very faithful and necessary brief Work of Anatomy, or Dissection of the Body of Man, compendiously shewing the Natures, Forms, and Offices of every Member, from the Head to the Feet, with a commodious Order of Notes, leading and guiding the young Chirurgeon's Hand from all Offence and Error, in right way of perfect and cunning Operation, compiled in three Treatises, more useful and profitable than any heretofore in the English Tongue published.* It was printed at *London, 1565. 4to.*

VOLCHERUS COITER.

This Author was born at *Groningen* in the Year 1534. and, in Process of Time, acquired a very great Character, both as a Physician, Surgeon, and Anatomist. In his *Introduction to Anatomy, Cap. 6.* he gives this Advice to such as are desirous of making quick and regular Advances in their Anatomical Studies: "If, says he, any one is fond to learn the Anatomical Art, let " him first read *Galen's* Books *de Usu Partium*, and *de Anatomiciis Administrationibus*; and then *Vesalius's* *Fabrica Corporis humani*. Let him, in the third place, read *Fallopius*; " and then *Vesalii Examen*; and, last of all, *Eustachius*; and " by this means he will be sure to acquire a thorough and perfect Knowledge of this Art." Anatomy is considerably indebted to this Author for his Labour and Industry; for he clearly specifies the first Origin of the Bones, accounts for their Growth, and points out the Difference between those of Infants and Adults; for he used to prepare Skeletons of Children, compare their Bones with those of Adults, and demonstrate the Difference between them to his Scholars in *Bologna*; where, in his own House, he exhibited an abortive Fœtus as long as a Finger, and furnished with all the Parts of a human Body. He also makes mention of another, which he saw at *Bologna*, in the House of *Dr. Arantius*.



In his *Traſtatus de Auditus Inſtrumento*, he has theſe Words : “ What *Fallopius* called the Tympanum, he chiefly took from “ the Ears of Brutes, and ſuch Animals as chew the Cud ; for “ theſe have this Paſſage formed like a certain Species of Sea- “ ſhell, or a *Turkiſh* Drum ; whereas in Men this Paſſage is “ widely different from the Shape of a Drum.” For this Rea- ſon he thinks, that this Paſſage, or the ſecond Cavity, receives its Denomination of Tympanum rather from its Uſe than its Form. He maintains, that there are two of theſe Cavities ; for, ſays he, immediately behind the Myringa, by which he meant the Tympanum, in the upper and fore Parts, appears a Cavity, which is at firſt narrow, but afterwards dilating itſelf, is ſtretch’d backwards towards the upper Parts, and this Part is ſpongy and fungous, and ſeems to have a Communication with the internal Space of the Proceſſus Mamillaris.

According to him two of the *Officula Auditus*, that is, the two largeſt, are full of ſmall Holes, which are fill’d with a medullary Subſtance ; but the third contains none, on account of its exceeding Smallneſs.

He ſays, that there are two Muſcles of the internal Ear aſſigned by ſome, but he does not deſcribe them.

To the Muſcles belonging to the Face, he adds ſome others, which, by later Authors, are called the *Muſculi Corrugatores*, but, from their principal Office, ſhould rather be ſtyled the *Muſculi Superciliorum Depreſſores*, which he firſt diſcovered, and accurately deſcribed, but gave them no Name : He adds, “ You will alſo obſerve, under the internal Skin of the Lips, “ and that of the Root of the Tongue, many fleſhy Glands, “ under which are found Fibres, riſing upwards from their “ Sides in an oblique Direction, and theſe to me ſeem to draw “ the under Lip inwards.” His Piece intituled, *de Cartilaginibus Tabulae*, was printed *Bononiæ*, 1566. Fol. His *Externarum atq; internarum principalium humani Corporis Tabulae*, &c. *Norimbergæ*, 1573. Fol. *Lovanii*, 1653. Fol. His *Lectiones Gabrielis Fallopi de Partibus Similibus humani Corporis ex diverſis Exemplaribus, ſumma cum diligentia collectæ*, &c. were printed at *Norimberg*, 1575. Fol.

#### JULIUS CÆSAR ARANTIUS.

This Author was born at *Bologna*, and was the Scholar of *Vesalius*, as alſo of his Uncle *Bartholomæus Magus*, who taught him the Elements of Anatomy in the Year 1548. His Piece intituled *De humano Fœtu Opusculum*, was printed *Venet.* 1571. *Baſil.* 1579. 8vo. *Venet.* 1587. 4to. To this Edition he join’d a Preface, and a Book of Anatomical Obſervations, printed *Venet.* 1595. In the firſt Chapter of the laſt Edition of this Book, he deſcribes the true and genuine Subſtance of the Uterus, aſſerting that it is fungous, and bears a Reſemblance to a Sponge ; that it is not ſingle, but diviſible into many Laminæ, like certain *Fungi*, which grow under Trees ; and that it is perforated with Holes, like a Sponge or a Pumice-ſtone. In the third Chapter he not only accurately deſcribes the Veſſels of the Uterus, but alſo maintains, that its Arteries are continued to the Veins ; which he alſo takes to be the Caſe with all the Arteries and Veins in the human Body ; which is the ſame as if, with later Authors, he had maintain’d, *That the Veins were no more than Arteries returning to the Heart.*

The ſpermatic and hypogaſtric Arteries, which he calls the deſcending and aſcending ones, not only unite, and are continued together ; but the Veſſels of the Right Part of the Uterus are intermix’d with thoſe of the Left.

And, in *Chap. 4.* he treats largely and accurately of the Coalition of the Veſſels in the Heart of a Fœtus. “ A few “ Days, ſays he, after their Birth, there is a Coalition of this “ Foramen ; tho’, even in older Subjects, ſome remaining Marks “ of that Agglutination are always retained.”

He alſo makes mention of another Coalition in the Liver, that of the *Vena Portæ* with the *Vena Cava*, which is now univerſally called the Ductus Venofus.

That white and riſing Part of the Baſis of the Ventricles of the Brain, which is ſtretch’d forwards, on both Sides, in a longitudinal Direction to the Forehead, he calls the *Pedes Hippocampi*.

He ſays, that the Muſcles of the Eye ariſe from the *Oſ Sphenoides*, hard by the Foramen, thro’ which the Optic Nerve paſſes ; but that one of the oblique Muſcles, or that call’d the *Muſculus Brevis*, ariſes from a certain Suture, or Cleſt, which divides the Bones of the *Maxilla Superior* from the *Oſſa Mali*.

He aſſerts, that the *Muſculus Palpebræ Superioris*, deſtin’d for opening the Eye, and riſing alſo from the *Oſ Sphenoides*, was known to him in the Year 1548.

He firſt obſerved the interior Chink of the Larynx, accurately deſcribed it, and appoſitely enough compared it to the Cleſts in muſical Wind Inſtruments.

Tho’ he does not openly acknowledge the Circulation of the Blood, yet he largely ſpecifies all the Arguments that are calculated for deſtroying the Hypotheſis of the Antients, concerning a Tranſudation thro’ the Septum or Partition, which divides the Ventricles of the Heart.

He firſt obſerved, that the Duct of the Artery of the Spleen was oblique, and twiſted in form of a Snake.

He was the firſt who aſſerted, that the middle Subſtance of the Urethra, or of the Canal common to the Urine and Sperm, was of the ſame Structure with the Penis itſelf, and capable both of being diſtended, and becoming flaccid.

He firſt took Notice of an orbicular Muſcle ſurrounding, on all Sides, the Sinus Muliebris ; but this Diſcovery was owing to *Jacobus Carpus*, who had before deſcribed the whole Neck of the Uterus as a muſcular Subſtance.

According to him the *Muſculi Recti* of the Abdomen ariſe with a fleſhy Origin from the *Pubes*, when their Coverings, he means their *Muſculi Pyramidales*, are wanting.

He maintains, that the Portion of the *Muſculus Biceps*, which, according to *Vesalius*, ariſes from the Proceſs of the Acromion, and is inſerted into the Humerus, is the eighth Muſcle of the Humerus, which was afterwards by *Riolanus* call’d *Coraco-brachialis*. But it is, without Reaſon, by ſome call’d the *Nomus Humeri Placentini*, ſince it is in reality the Diſcovery of *Arantius*.

He likewiſe diſcovered the *Indicator*, or the *Indicis extenſor proprius*, which had remain’d unobſerved before him.

He maintain’d, that the ſecond Muſcle of the Fingers, by which he means what is now call’d the *Flexor perforans*, was the Inſtrument of bending all the *Internodes*, and not of the third Joint only, as his Predeceſſors had maintain’d.

He aſſumes to himſelf the Diſcovery of the *Muſculus Femur Circumagens*, which he calls the twelfth.

He likewiſe obſerves, that a Portion of the *Muſculus Femoris primus*, that is, of the *Gluteus Maximus*, becomes a membranous Tendon, which joining with another Tendon ariſing from the ſixth Muſcle of the Tibia, or the *Pſyialis*, is ſtrongly and laterally inſerted into the Appendix Tibiæ.

By means of this Communion, or Conjunction, he accounts for the Pains of the Hips reaching to the very Knee.

In his *Obſervat. Anatom. Chap. 36.* he has theſe Words concerning the Subſtance of the Teſticles : “ Perfect Seed is car- “ ried, as it were, from numberleſs ſmall Roots of a Plant, “ variously diſperſed thro’ the Subſtance of the Teſticles, which “ Roots appear wrapp’d up and curl’d like the Tendrils of Vines, “ and reſemble white curl’d Hair.”

#### CONSTANTIUS VAROLIUS.

This Author was a Native of *Bologna*, an accurate Philoſopher, an expert Surgeon, and a ſkilful Anatomist.

He is ſaid to be the firſt who diſcover’d the Valve of the Colon, and elegantly deſcribed it in the following Words :

“ Where the Ilium is joined to the Colon, there riſes in its “ inner Part a certain Membrane, being the laſt Boundary of “ the Ilium, which reaches ſo far, and which I, its firſt Diſ- “ coverer, call the *Operculum Ilii*.” And a little after he makes mention of the “ Appendix of the Colon, as being an “ oblong Sack, imperforated at one of its Extremities, which “ is call’d the *Inteſtinum Cæcum*.”

He firſt divided the Brain into three Parts, by adding the Beginning of the Spinal Marrow, whiſt yet contain’d within the Scull, and giving Birth, as it were, to the Nerves, whoſe Origin was formerly thought to be the Brain.

The Optic Nerve, according to him, ariſes from the poſterior Part of the Spinal Marrow, and not from the Baſe of the Brain in its fore Part, as *Galen* and others maintain’d.

The tranſverſe Proceſs of the Brain is call’d the *Pons Varolii*, from *Varolius*, its firſt Discoverer.

He firſt diſcovered the Glands in the *Plexus Choroideus*.

His *Anatomicæ, ſive de Reſolutione Corporis humani, Libri Quatuor*, &c. was printed *Patavia* 1573. 8vo. *Francoſ.* 1591. 8vo.

#### JULIUS JASSOLINUS.

This Anatomist was the Scholar of *Philip Ingraffias*, and afterwards ſucceeded him in the Univerſity of *Naples*, in the Year 1570. Dr. *Douglas* calls him, *ſeculi Epidaurius ſui*. But *Riolanus*, who was no bad Judge of an Anatomist’s Worth, talks of him in this diminutive Strain : “ As the Pre- “ ſence of ſome Men leſſens their Fame, ſo the reading Books “ that have been earneſtly deſired and fought after, ſometimes “ makes their Authors appear mean and contemptible.”

He has ſomething pretty remarkable concerning the Generation of the Bile ; for he maintains, that the bilious Excrement is evacuated from the Liver, in two different Portions ; the one is unmix’d, thin, and unadulterated, and is carry’d into the *Veficula* itſelf, by the ſmall Veſſels between the Roots of the *Vena Portæ* and the *Vena Cava*, which the Gall bladder afterwards diſcharges into the Beginning of the Inteſtine. Another Portion of it is mixed, thick, and ſeculent, which is carry’d directly from the Liver into the Inteſtine. To this he has ſubjoin’d a new Figure of the Gall-bladder and its Veſſels. His *Quæſtiones Anatomicæ*, and *Oſteologia Parva*, were printed *Neapoli*, 1573. *Oſt. Hanoviae*, 1654. *Quarto*. His Piece



*De Poris Cholidocis, & Vesica Fellea*, was printed Neapoli, 1577. Octavo.

JOANNES BAPTISTA CARCANUS LEONIS.

This Anatomist was a Native of Milan, and the Scholar of Fallopius. He maintain'd, that there was no Membrane in the *Canalis Arteriosus*, which shuts up its Orifice, as *Fesalius* imagined.

The Foramen near the Orifice of the *Vena Cerebralis*, thro' which the Blood flows from the *Vena Cava* to the *Arteria Venalis*, appears to be of an oval Figure. Hence we may conclude, that it first acquired the Name of *Foramen Ovale* from this Description.

He asserts that the *Vena sine Pari* has no Membranes or Valves on its Orifice, which contradicts what *Amatus Lusitanus* relates, who in his first Century of Cures affirms, that he saw these Membranes exhibited at Ferrara, by *Johannes Baptista Conanus*.

He finds Fault with Columbus for asserting, that the Penis has neither Veins nor Nerves; for he not only specifies the Veins of its principal Substance, but also others which creep along its Surface, and which he calls cutaneous; all which taken together, a certain Modern of great Note call'd the *Vena ipsius Penis*, or, the Vein of the Penis itself.

He asserts, that the *Musculus Orbicularis* of the Eye-lids cannot be separated into two, as *Fesalius* thought. His two Books of Anatomy were printed Tumi, 1574. Oct.

FELIX PLATERUS.

This Author was born at Basil, in Switzerland, in the Year 1536. He had from his Infancy a Desire to view the Entrails of Beasts when they were slain, and even then pronounced the Butcher happy, for his being able at first View to handle them over and over, without committing a Mistake. His *Libri Tres de Corporis humani Structura & Ufu*, &c. were printed Basil, 1583. Fol. 1603. Fol. His *Quaest. Physiologicae*, Lugd. Bat. 1650. His Piece *De Aludicrum Partibus Generationi dicatis*, &c. Argentinae.

SALOMON ALBERTUS.

This Author was Professor of Physic at Wirtemberg, and published a Book, intituled *Historia plerarumq; Corporis humani Partium, in Usum Tyrorum, Wittebergae*, 1583. Oct. 1602. Oct. 1630. Oct. The Discovery of the Valve of the Colon, commonly called the *Valvula Bauhini*, is justly ascribed to him; for he affirms, that he first discover'd it in a Beaver, and then in a Man.

His three Orationes *de Disciplina Anatomica* were printed Nirembergae, 1585. Octavo; and his *Observationes Anatomicae*, Wittebergae, 1620. Oct.

ARCHANGELUS PICCOLIOMINUS.

This Author was a Native of Ferrara, and a Citizen of Rome: He was born in the Year 1526. but in *Riolanus's* Opinion, he was rather a Philosopher, than an Anatomist, since his Anatomical Prelections are interspersed with Physiological Disquisitions, and fine-spun Controversies, quite foreign to Anatomy. But that he labour'd with Success in this Branch of Learning, is sufficiently evident from the Improvements and Discoveries he has made in Anatomy; for

He was the first who divided the Substance of the Brain into *cineritious* and *medullary*; for he calls that concretious or whitish livid Body, which first appears, the Brain itself; but he calls that solid white Body which is wrapt up in it, the *Medulla*, or Marrow, which he distinguishes into three Kinds, the *Medulla globosa*, the *Medulla oblongata candida instar*, and the *Medulla spinalis*.

He maintains, that all the Nerves have their Origins from the *Medulla oblongata*.

He was the first who called the *Processus Mamillares*, *Nervi odoratorii*, or, the Nerves by which the Sensation of Smelling is produced.

He first discovered that wonderful Contrivance of Nature at the Beginning of the *Intestinum caecum*, that is, three Valves like little Doors opening downwards: And asserted, that they were design'd to prevent the Return of the Faeces.

He first delineated the Anastomosis of the Vena Porta and the Vena Cava within the Liver, after it had been described by *Jacobus Carpus*.

He ascribed Prostatæ to Women, as *Galen* had done before him.

He was also the first who described the particular Membrane of the Fat, which *Riolanus* afterwards called the *Membrana Adiposa*.

He asserts, that the Peritonæum is every-where double, and consists of two Coats.

He first took notice of, and described, that white Line of the Abdomen, which is now called the *Linea alba*.

In his Opinion there was only one continued Duct which reach'd from the Mouth to the Anus

He affirms that the internal Coat of the Intestines is three times as long as the external Coat; and that it is corrugated, and form'd into Wrinkles, that the Chyle, by that means, remaining longer in them, might be the more commodiously extracted by the mesenteric Veins.

He describes the membranous Canals, or the Tubes with a fleshy Covering, thro' which the Urine is strained, better than *Carpus* or *Massa*.

The Reason he assigns, why the left spermatic Vein does not arise from the emulgent, is precisely the same which is embraced by the Moderns.

He calls the *Hymen*, *Claustum Virginitatis*.

He assigns Names to all the Muscles, from the Uses and Ends, for which Nature design'd them; thus he named the *Musculi Ocularii*, or *Visarii*; *Masticatorii*; *Lentarii*; *Respiratorii*; *Amplexarii*; *Scapularii*; *Humeralii*, *Cubitalii*; *Apprehensarii*, or *Manuum Moventes*; and *Ambulatorii*, or *Progressarii*; the *Femorales*, and *Tibiales*, &c.

He call'd the frontal Muscles *Musculi Pathematici*, or *Musculi Animi affectuum significativi*. His *Anatomicae Praelectiones* were printed Romæ, 1586. Folio; and his *Commentarii in Librum Galeni de Humoribus*, Paris. 1556. Oct.

CASPARUS BAUHINUS.

This Author was born at Basil, in the Year 1560; and was universally esteem'd to be a skilful Anatomist, and a curious Botanist: But *Riolanus* talks of him as ignorant, injudicious, and presumptuous. He says, that, in the Year 1579. he observed the Valve in the Beginning of the Ilium, or Colon, before he read any Author who made mention of it: But 'tis certain, that *Varolius*, and a great many others, describ'd it very accurately many Years before.

He took notice of the natural Narrowness of the Intestinum Colon in the Right Side; and for this Reason Colic Pains not only arise most frequently, but rack most violently, in that Part; for that narrow Passage is easily obstructed, by the Excrements, which are long retained there, and indurated. His Piece, intituled *De Partibus humani Corporis externis Liber*, was printed Basil. 1588. His *Anatomes Liber secundus*, ibid. 1591. Oct. His *Anatomica Corporis Virilis & Muliebris Historia*, Lugd. Bat. 1597. Oct. 1609. Oct. His *De Corporis humani Fabrica*, Lib. 4. &c. Basil. 1600. Oct. His *Theatrum Anatomicum*, Francof. 1605. Oct. Francof. 1621. Quarto. His *Institutiones Anatomicae*, &c. Basil. 1604. 1609. Oct. 1640. Quarto. Francof. 1616. Oct. Oppenheimii, 1614, Octavo. 1629. Oct. His *Epistola Anatomica Curiosa*, Lipsiae & Franc. 1673. Quarto.

JOHANNES POSTHIUS.

This Anatomist was born in the Year 1537, in *Germerheim*, a Town of the Lower Palatinate upon the Rhine, and died in the 60th Year of his Age, in the Year 1597. He seems to be very dextrous at dissecting the Muscles, which is sufficiently proved by some Discoveries he has made.

He maintains, that there are four Muscles which draw the Lips inwards to the Teeth; two in the inferior, and two in the internal Part.

He ascribes six Muscles to the Penis; and affirms, that there is only one Muscle between the Cartilages of the Ribs, and not two, as in the intercostal Spaces.

He says, that the fourth Muscle of the *Maxilla inferior* does not arise from the Styloid, but from the Mamillary Process. He was also the first who asserted, that the tendinous Part of this Muscle adhered to the *Os hyoides*. He also asserts, that the *Processus Mamillares* are not the Organs of Smell. He advises to dissect the Muscles, as much as possible, in such a manner as to preserve their Origins and Insertions entire; because by this means their Uses may be most commodiously discovered. His *Observationes Anatomicae* were printed Francof. 1590. 1593. Octavo. His *Mantissa Anatomica* was printed Hafniae, 1661. Oct.

VIDUS VIDIVS.

This Author was born at Florence, but was Professor of Physic and Surgery at Paris, and Physician to Francis I. He died in 1567.

He was remarkable for being extremely well vers'd in the Writings of *Hippocrates*.

His *Ars Medicinalis* was printed Venet. 1611. 3 Vol. Fol.

The third Volume contains seven Books, on the Subject of Anatomy, illustrated with twenty-eight Copper Plates.

ANDREAS CÆSALPINUS.

This Author was born at Arezzo in Italy, and was a strong Champion for the Peripatetic Doctrine, in Opposition to *Galen*, who was at that Time reverenc'd as an Oracle. Hence it was, that the Writings of *Cæsalpinus*, tho' very valuable in themselves, were neglected; and those Passages which he casually wrote, concerning the Circulation of the Blood, either not adverted to, or not understood, by any, till *Harvey*, the Glory



Glory of his Country, published his incomparable Book upon that Subject.

*Cæsalpinus* affirms, with *Aristotle*, that the Heart is not only the Source and Origin of the Arteries and Veins, but also of the Nerves.

In Quest. 4. where he proves, that in Respiration no external Air can have Access to the Heart, he has these Words: "For the Membranes are so fitted and adapted to the Mouths of the Vessels, that when the Heart is dilated, they are opened; but when it is contracted, they are shut." Here he also clearly and fully explains the Contraction and Dilatation of the Heart.

"Some of the Vessels," continues he, "which terminate in the Heart, send their Contents into it; such as the *Vena Cava* into the Right Ventricle, and the Venous Artery into the Left. Some of them, on the other hand, draw their Contents from it, as the Arteria Aorta from the Left Ventricle, and the Arterious Vein from the Right; but they all have Membranes so fitted and adapted to them, that the Mouths of the intronitting Vessels will not admit of a Return, and the eliminating Vessels will not admit of an Intromission. It happens, that when the Heart is contracting, the Arteries are dilated; and when it is dilating itself, they are contracted;" for when the Heart is dilating, it shuts the Orifices of the eliminating Vessels, so that nothing can at that Time flow from the Heart into the Arteries; and when it is contracting, its Contents must flow into the Vessels, because the Membranes are then opened.

He maintains, that the Pulsation of the Heart and Arteries proceeds from an Effervescence of Humours in the Heart; and he treats largely of the Pulse.

Soon after, he has these Words: "The Lungs, therefore, drawing the hot Blood from the Right Ventricle of the Heart by a Vein resembling an Artery, and by *Anastomosis* returning it to the Venous Artery, which goes to the Left Ventricle of the Heart, the fresh Air is in the mean time transmitted thro' the Canals of the *Aspera Arteria*." *Realdus Columbus* had advanced the same before him.

"The several Phænomena, appearing upon the Dissection of a Subject, correspond excellently with this Circulation of the Blood, from the Right Ventricle of the Heart, thro' the Lungs, to the Left Ventricle."

And a little after he with a great deal of Learning proves, That the Antients had no manner of Reason for giving the Names of *Arteria Venosa*, and *Vena Arteriosa*; to the Vessels which bear these Names, since, in his Opinion, one of them was an Artery, and the other a Vein.

In his fifth Question, where he shews, that the Heat of the Heart is the Principle of Motion in Respiration, he has these Words: "The same hot Blood, which, by dilating the Heart, causes the Pulse, is also, by dilating the Lungs, the Cause of Respiration." The Lungs then being enlarged, the external Air must necessarily rush into the *Aspera Arteria*, which Inspiration is, for that very Reason, call'd Refrigeration; and a Diminution of Bulk happens just as in boiling Liquors, when cold ones are pour'd into them; but when the Lungs collapse, the Air must necessarily be returned, which is call'd Expiration.

In Question the sixth, he endeavours to prove, that no Part, in which there is not Blood, can be capable of Sensation. But tho' in his Opinion there can be no Sensation without a Nerve, yet it is not the Nerve that feels, but the Flesh, or Part in which the Blood is contained.

"The Contrivance of Nature," says he, "in animal Motion, resembles that of Organs, which, by means of the Air communicated to the Pipes, and by touching sometimes one, and sometimes another Key, produce the various Combinations of Sounds intended by the Organist."

In Question the seventeenth of his second Book, he says, that Suffocation in a Quinsy is rather produced by the Repletion of the Jugular Veins, than the shutting up the Mouth of the Larynx; for when the Veins of the Neck are so obstructed, that the Blood and Spirits cannot ascend, they must necessarily regurgitate to the Heart and Lungs; and the Lungs being fill'd, and becoming replete by this means, cannot contract and dilate themselves.

In Page 234. he has these Words: "The Veins become turgid beyond the Ligature, and not betwixt it and the Heart; but it ought to have been otherwise, if the Motion of the Blood and Spirits had been from the Viscera to the several Parts of the Body; for the Passage being obstructed, the progressive Motion of the Blood is stop'd, so that the Veins should have become turgid betwixt the Ligature and the Heart." Let us see whether this Difficulty is solved by what *Aristotle* has said, *Lib. de Somno, Cap. 3.* where he has these Words: "For that which is evaporated must necessarily be impell'd to some Part, and then transform'd and chang'd in the same manner with that Arm of the Sea called *Euripus*; for that which is warm in every Animal, has a Ten-

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dency to fly upwards: But when much of it is lodg'd at one end and the same time in the upper Parts, it then returns, and is carried downwards." Thus far *Aristotle*.

"For the understanding of which Passage we must know, that the Passages of the Heart are so contrived by Nature, that there is an Entry from the Vena Cava to the Right Ventricle of the Heart, from which there is a Passage into the Lungs; and that from the Lungs there is another Passage into the Left Ventricle of the Heart, from which at last there is a Passage into the Arteria Aorta, certain Membranes being fitted to the Mouths of the Vessels to hinder the Return of the Fluids; for thus there is a perpetual Motion from the Vena Cava, thro' the Heart and Lungs, into the Arteria Aorta.

"When we are awake, the Motion of the natural Heat is towards the Surface of the Body, which is the immediate Instrument of Sensation; and since, during Sleep, it is towards the Heart, we may suppose, that, in a waking State, many Spirits, and much Blood, are convey'd into the Arteries, and froth thence carried into the Nerves; but that in Sleep this same Warmth returns to the Heart thro' the Veins, and not thro' the Arteries; for there is a natural Passage to the Heart thro' the *Vena Cava*, but not thro' the Artery. A Confirmation of this may be had from the Pulses of the Arteries, which, in waking People, are high, vehement, quick, frequent, and in some Degree vibratory. But in Sleep they are low, languid, slow, and loitering; for, during Sleep, very little of the natural Heat goes into the Arteries, but it rushes into them with greater Violence when we awake; but 'tis quite otherwise with the Veins, which, during Sleep, become turgid, but lessen and become smaller when we are awake, as will appear by taking a View of those in the Hand, in these two different States.

"For the native Heat, during Sleep, passes from the Arteries into the Veins, by a Communication of Orifices, called *Anastomosis*, and from thence to the Heart. But as the Flux of the Blood towards the upper Parts, and its Reflux to the lower, after the manner of *Euripus*, is manifest both during a State of Sleeping, and Watching; so the Motion of it in any Part of the Body is very sensible, when a Ligature is apply'd, or the Veins are obstructed any other way. For when the Passage is intercepted, those Rivulets swell at the very Part where they were used to flow easily; perhaps the Blood, on such an Occasion, returns to its Source, lest its Motion being intercepted, it should be quite destroy'd."

Tho' *Cæsalpinus* writes, as one would think, very explicitly upon this Matter, yet we will not take upon us to determine positively, that he knew this Affair distinctly. We rather think, with Mr. *Wotton*, "That this Notion had only been occasionally and slightly treated of by *Columbus* and *Cæsalpinus*, who themselves, in all Probability, did not know the Consequences of what they asserted; and therefore it was never applied to other Purposes, either to shew the Uses of the other Viscera, or to explain the Nature of Diseases: Neither, for any thing that appears at this Day, had they made such Numbers of Experiments, as were necessary to explain their Doctrine, and to clear it from Opposition. All this Doctor *Harvey* undertook to do, and with indefatigable Pains traced the visible Veins and Arteries throughout the Body, in their whole Progress from and to the Heart, so as to demonstrate even to the most Incredulous, not only that the Blood circulates thro' the Lungs and Heart, but the very Manner how, and the Time in which, that great Work is performed."

His *Questionum peripateticorum libri Quatuor, Dæmonum Investigatio peripatetica, Questionum Medicarum Libri Duo, & de Medicamentorum Facultatibus*, were printed *Venetiis* 1593: 4to.

This Author dy'd at *Rome* in 1603.

HIERONYMUS FABRICIUS AB AQUAPENDENTE;

So called from a Town in *Tuscany*, where he was born. He was Pupil to *Gabriel Fallopius*, then Professor of Anatomy at *Padua*, whom he succeeded in that Province, in the Year 1565. and continued in it upwards of fifty Years. He dy'd in 1619. at *Padua*.

In 1574. he first observ'd the Valves of the Veins, of which, it is said, he was inform'd by Father *Paul*; but he was not acquainted with their true Structure, nor their Uses.

He discovered a small Muscle in the Internal Ear, which he appropriates to the Malleus.

He affirms, that the Cuticle consists of two Laminæ.

He was also the first who look'd upon the carnosus Coat of the Bladder, as a Muscle concern'd in the Expulsion of the Urine.

Besides these Particulars, he has many others which deserve Attention. And, upon the Whole, he was an accurate Anatomist, and admirable Surgeon.



# A N A

His Works are, *De Visione, Voce, & Auditu*, Venet. 1600. Fol. *Tractatus de Oculo Visus Organo*, Patavii, 1603. Fol. Francof. 1605. ----- 1613. Fol. *De Venarum ostiolis*, Patav. 1603. Fol. *De Locutione & ejus Instrumentis*, ibid. 1603. Fol. *De Musculi Artificio, & Ossium Articulationibus*, Vicentiæ, 1614. 4to. *De Respiratione & ejus Instrumentis*, Patavii, 1615. 4to. *De Motu locali Animalium*, Patav. 1618. 4to. *De Gula, Ventriculo, Intestinis Tractatus*, Patavii, 1618. 4to. *Opera Anatomica*, Francof. 1623. Patav. 1625. *Opera omnia Physiologica & Anatomica*, Lipsiæ, 1687. Fol. *Opera Anatomica cum Præfatione Albini Lugduni*, Batav. 1738. Fol.

## JULIUS CASSERIUS

Was born at *Placentia* in *Italy*, in 1545. He was first Servant, and afterwards Pupil, to *Fabricius ab Aquapendente*; and by dint of Parts and Industry made very great Progress in Anatomy, insomuch that, in the Opinion of Dr. *Douglas*, he was a better Dissector than his Master, tho' not so good a Philosopher. He dy'd in 1605. in the sixtieth Year of his Age.

His Works relate principally to the Organs of Voice, and of the Senses, and are illustrated with excellent Figures. Their Titles and Editions are as follows: *Historia Anatomica de Vocis Auditusque Organis*, Ferrariæ, 1600. Venetiis, 1607. Fol. *Pentæsthesion*, Venet. 1609. Francof. 1609. 1610. 1622. Fol. *Tabula Anatomica*, with what was wanting, supply'd by *Daniel Bueretius*, Venet. 1627. Francofurt. 1632. 4to. Amstelod. 1645. *Tabulæ de formato Fœtu*, Amstelod. 1645.

## JOHANNES PHILIPPUS INGRASSIAS,

A *Sicilian* by Birth, and Professor at *Naples*, flourish'd about the Year 1546.

He claims the Discovery of the Stapes, a small Bone of the internal Ear; and is the first who describes the true Structure of the Os Cribrosum.

His only Anatomical Work is his *Commentaria in Galeni Librum de Ossibus*, printed Panor. 1603. Fol. Venet. 1604. Fol.

## ANDREAS LARENTIUS

Was Professor of Physic, and Chancellor of the University of *Montpelier*, and Physician to *Henry* the Fourth of *France*. He dy'd in 1619. His Anatomical Works are more remarkable for Elegance of Style, than Correctness, with respect to the Subject; for he is said to have made a great many Mistakes, and to have laid Claim to many important Discoveries, which were however known to preceding Authors. His Errors are said by *Riolanus* to be owing to his trusting to the Reports of others, without examining the Parts himself. His Anatomical Works and Figures are, notwithstanding, in very good Repute, and are esteemed very useful.

His Works are *Histor. Anatom. humani Corporis*, &c. printed Paris. 1600. Fol. Francof. 1600. Fol. --- 1602. 8vo. 1616. 8vo. --- 1627. 8vo. *Opera omnia Anatomica & Medicæ*, Francof. 1627. Fol. in French, à Paris, 1646. Fol. *Opera Anatomica*, &c. *Hanovix*, 1601. 8vo.

## LUDOVICUS SEPTALIUS

Was born at *Milan* in 1550. and dy'd at the same Place in 1630. He describes the Structure of the Cartilago Eniformis, in his Book *de Morbis ex Mucronata Cartilagine evenientibus*, Mediolani, 1632. 8vo.

He also publish'd a Book *de Nævis*, printed Mediolani, 1606. Patavii, 1628. 8vo. Argent. 1629. 8vo. Patavii, 1651.

## PETRUS PAAW.

This Anatomist was born at *Amsterdam*, in 1564. As he had the Advantage of attending the Lectures of *Bontius*, *Heurnius*, and *Rembert Dodonæus* at *Leyden*, of *Duretus*, and *Joh. Faber*, at *Paris*; and of seeing the Dissections of *Fabricius ab Aquapendente* at *Padua*, by this, and his own Industry, he acquired great Knowledge and Reputation in his Profession, insomuch that in 1589. he was made Professor of Physic at *Leyden*.

His Works are, *Præmiæ Anatomice de humani Corporis Ossibus*, Lugd. Batav. 1615. 4to. Amstelod. 1633. 4to. *Notæ & Commentarii in Epitomen Andrea Vesalii*, Amstelod. 1616. ibid. 1633. 4to. *Suæcenturiatus Anatomicus*, &c. Lugd. Batav. 1616. *De Valvula Intestini Epistolæ Duæ* are extant in the first Century of *Fabricius Hildanus*, printed Oppenheim. 1619. His *Anatomicæ Observationes Selectiores*, published by *Thomas Bartholinæ*, are in the third and fourth Centuries of his *Hist. Anatom. & Med. rar.*

## BARTHOLOMÆUS CABROLIUS

Was of *Aquitain*. He was Professor of Anatomy at *Montpelier*, about 1570.

His Anatomical Works are, *Alphabeton Anatomicum*, printed Genève, 1604. 4to. and in French, 1624. 4to. and the *Colle-*

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*gium Anatomicum Clariss. trium Viror. Jassolini, Severini, Cabrolii*, Francof. 1668. 4to.

## GEORGIUS HORSTIUS

Was born in 1575. and in 1606. was made Professor at *Wirtemberg*. He dy'd in 1636. at *Ulm*.

His Anatomical Works are, *Scepsis de Naturali Conserveatione & Cruentatione Cadaverum*, Wittebergæ, 1607. 8vo. *Libri Duo de Natura humana*, Wittebergæ, 1607. 8vo. Francof. 1612. 4to. *Ulmæ*, 1628. 4to. *Norimbergæ*, 1652. 4to. His *Anatome Corporis humani*, Gressæ, 1617. Fol. *Exercitat. de Natura motus Animalis*, Giffæ, 1617.

## CASPAR HOFFMAN

Was born at *Saxe Gotha*, in 1572. and practis'd Physic at *Norimberg* and *Altorff*, about the Year 1600. He died in 1648.

He wrote the following Anatomical Treatises: *De Usu Lienis Secundum Aristotelem Liber singularis*: *De Usu Cerebri secundum Aristotelem Diatriba*, Lipsiæ, 1619. 8vo. *Commentarii in Galen. de Usu Partium*, Lib. 17. Francof. 1625. Fol. *De Thorace ejusque Partibus Commentarius*, Francof. 1627. Fol. *De Generatione Hominis*, Francof. 1629. Fol. *Notæ perpetuæ in Galen: de Ossibus Librum*, ibid. 1630. *Institutiones Medicæ*, Lugd. 1645. *De Partibus Similaribus Lib. singularis*, Francofurt. 1667. 4to. *Pro Veritate*, Tract. 3. Lutetiæ, 1647.

## JOHANNES RIOLANUS

Was born at *Paris*, in the Year 1577. where he was afterwards Royal Professor of Anatomy and Botany, and first Physician to *Mary of Medicis*, Mother to *Lewis* the XIIIth. He was an exceeding dexterous Anatomist, and elegant Writer; he enriched Anatomy with many useful Discoveries, and appears well versed in the Writings of the Antients.

Amongst other Discoveries, he first took Notice of the Appendiculæ Pingues of the Colon, gave Names to the Hepatic and Cystic Ducts of the Liver; and observed, that the Ductus Communis was not furnished with a Valve, but instead of that, with a kind of Rugosity, which in some Degree supplies the Place of one.

With respect to the Hymen, he thinks it is a circular Membrane, placed across the Vagina, with a small Foramen in the Middle; and that by the Laceration of this, the Carunculæ Myrtiformes are form'd.

He allows of the Anastomoses of the Epigastric and Mammary Arteries in Women, but not in Men.

He has also some Observations, which are new, concerning the Canal of the Cervix Uteri, the Os Hyoides, Tongue, and a Ligament, which is extended from the Styloide Apophysis, to the Angle of the lower Jaw.

His Works are *Schola Anatomica*, &c. Paris. 1607. 8vo. 1609. Genev. 1624. 8vo. *Anatome Corporis humani*, &c. Paris. 1610. Fol. *Osteologia*, &c. Paris. 1614. 8vo. *Anthropegraphia*, Paris. 1618. 8vo. ibid. 1626. 4to. His *Opera Anatomica*, Lutetiæ Paris. 1649. Fol. *Opuscula Anatomica*, Paris. 1652. 12mo. *Enchiridion Anatomicum*, &c. Lugdun. Batav. 1649. Paris. 1658. 8vo. *Jenæ & Lipsiæ*, 1674. 8vo. Lugdun. Batav. 1675. 8vo. Francof. 1677. 8vo. and in French, à Lyon. 1682. 8vo.

## ANDREAS LIBAVIUS.

This Author was Professor of Poetry and History at *Jenæ*, in 1588. and in 1605 Director of the University of *Coburg*. He died in 1616.

His Character is founded on his Chymical Works; but he was the first who described the Method of transfusing the Blood from one Animal to another. See the Article CHYMIA.

## ÆMILIUS PARIANUS.

This Author treats on many Anatomical Subjects; but, as it is said, with a great deal of Ignorance and Insolence. *Riolanus* speaking of this Author, has the following remarkable Passage: *Cacata hæc Charta annalium Volusianorum fato dignissima, quæ Parisani Fatuitatem declarat, deferatur in Vicum vendentem Thus, & Odores, & Piper, & quicquid Chartis amicitur ineptis*. His Works are, *Nobilium Exercitationum Lib. duodecim*, printed Venet. 1623. Fol. *Par & Sanius Judicium de Seminis à toto Proventu*, &c. Venet. 1633. *Altera Pars Nobilium Exercitationum*, Venet. 1635. Fol. *Nobilium Exercitationis Pars tertia*, Venet. 1638. Fol.

## MELCHIOR SERIZIUS.

This Author was born at *Straßburg*, in 1578. and is remarkable for having studied at twenty-seven Universities. He was Professor at *Straßburg*.

His Works are interspersed with many Anatomical Dissertations; they are, *Exercitationes Medicæ*, &c. Argentorat. 1624. 1631. 1636. 4to. 1674. 4to. *Dissertationes tres de Respiratione*, Argentorat. 1642. 4to. *Disput. 4. de Dentibus*, ibid. 1645. 4to. *Disputat. de Concoctione*, ibid. 1642. 4to. *Disputat. de Facultatibus*,



*cultatibus Naturalibus, ibid. 1644. 4to. Disputat. de Sudore, ibid. 1657. 4to. Disputat. de Fame & Siti, ibid. 1655. 4to. Disputat. de Pilis duæ, ibid. 1651. 4to. Prodrömi Examinis Vulnerum singularum humani Corporis Partium partes quatuor, Argentorat. 1632. 4to.*

ADRIANUS SPIGELIUS.

This Physician was born at *Brussels*, in 1578. He was a celebrated Anatomist, Knight of *St. Mark*, and first Professor of Anatomy and Surgery at *Padua*. His Works are, *De formato Fœtu Liber singularis, Patav. 1626. Fol. Francof. 1631. 4to. De humani Corporis Forma Lib. decem, &c. Venet. 1627. 1654. Fol. Francof. 1632. 4to. De incerto Tempore Partus Epistola, 1664. Opera omnia quæ extant, Amstelodam. 1645. Fol.*

ALEXANDER MASSARIAS.

This Physician was born at *Vicenza*, and in 1587 was Professor of Physic at *Padua*; he died in 1598.

He is remarkable for the extravagant Compliment which he paid to the Memory of *Galen*, which was, that *he had rather err with Galen, than be in the right with the Moderns.*

His *Traëtatus de Urinis & Pulsibus*, was published *Francof. 1608. Opera Medica, Lugdun. 1634.*

MATTHIAS LUDOVICUS GLANDORP.

This Author was a Pupil to *Spigelius*, and a celebrated Surgeon of *Bremen*. His Works contain many Anatomical Observations, some of which are illustrated with Figures. His Works are, *Speculum Chirurgorum, Bremæ, 1619. 12mo. Traëtatus de Polypo Narium, Bremæ, 1628. 4to. Gazophylacium Polyplusium Fomiculorum & Setonum reseratum, &c. Bremæ, 1632-1633. 4to.*

PETRUS LAURENBERGIUS

Was Professor of Physic and Philosophy at *Rostoch*. He was, in the Opinion of *Riolanus*, but an indifferent Anatomist. His Works are, *Isagoges Anatomicæ Græcæ Interpretatio, Lugd. Batav. 1618. 4to. Proœstria Anatomica, Hamburgi, 1619. 4to. Anatomia Corporis humani, Rostochii, 1636. 4to. Francof. 1665. 12mo.*

FABRICIUS BARTHOLETUS.

This Author was born at *Bologna*, in 1588. and was Professor at *Pisa*. He died in 1630.

He wrote an Anatomical Piece, intituled, *Anatomica humani Microcosmi Descriptio, Bononiæ, 1619. Fol.*

JOHANNES REMELINUS

Was of *Ulm*, in *Swabia*. His Work is only remarkable for the Figures, which are contrived in such a manner, that upon lifting up that Part of the Figure, which represents the external Parts, those which are situated underneath are discovered; and upon removing these, others, which lie deeper, appear.

*Stephanus Michelspachier* engraved these Plates. They were published under the Title of, *A Survey of the Microcosm, or The Anatomies of the Bodies of Men and Women, &c. London, 1702. Fol.* In *Latin* it appear'd before; in 1613-1614-1615-1619. and in *Dutch*, 1645.

ROBERT FLUDD.

This Author was of *Salop*. He, in his Youth, followed the Profession of Arms; but was afterwards made Doctor of Physic at *Oxford*, and Fellow of the College of Physicians. He died in 1637.

His Work is intituled, *De Anatomia Triplici, Francof. 1623. Fol.*

RICHARD BANISTER,

An *English* Surgeon, wrote an Anatomical Description of the Eye, which is extant in the first Part of his Work, intituled, *A worthy Treatise of the Eyes, containing the Knowledge and Cure of 113 Diseases incident unto them and the Eye-lids, printed London, 1622.*

CASPAR ASELLIUS.

This Anatomist was born at *Cremona*, and was Professor of Anatomy at *Pavia*. He is celebrated for being the first, amongst the Moderns, who took Notice of the Lacteal Vessels in the Mesentery, which he describes as conveying the Chyle to a large Gland, situated in the Centre of the Intestines; but this Account, he confesses, is taken from the Appearances in Brute Subjects. He modestly declines the Honour of this Discovery, because he says these Lacteals were known to *Hippocrates*, *Erasistratus*, and *Galen*. This Discovery was made in 1622.

His Works are, *De Lactibus, seu Lacteis Venis, quarto Vasorum Meseraicorum genere novo invento, Dissertatio, cum Figuris elegantissimis, Mediolan. 1627. Basil. 1628. Lugd. Batav. 1640. 4to. 1641. 8vo.* It is also extant with the Works of *Spigelius*, revised by *Vander Linden*, and in *Veslingius*, illustrated by *Blasius*.

WILLIAM HARVEY.

This celebrated Physician was born at *Folkstone* in *Kent*, in the Year 1577. He studied five Years at *Padua*, where he took a Doctor's Degree; afterwards took the same Degree at *Cambridge*; and having been Physician to King *James* and King *Charles* the First, and President of the College of Physicians, he died in 1657, in the Eightieth Year of his Age.

His Discovery of the Circulation of the Blood was of the most Importance to Physic of any that was ever made, and acquir'd him an immortal Name. But as it has been frivolously disputed, whether the Honour of it belongs to him, I shall transcribe a Passage from *Wotton's* Reflections on ancient and modern Learning, which sets this Affair in a true Light.

This Discovery, first made perfectly intelligible by *Dr. Harvey*, is of so very great Importance to shew the Communication of all the Humours of the Body with each other, that as soon as Men were perfectly satisfied, that it was not to be contested, which they were in a few Years, a great many put in for the Prize, unwilling that *Dr. Harvey* should go away with all the Glory. *Vander Linden*, who publish'd a most exact Edition of *Hippocrates* in *Holland*, about thirty Years ago, has taken a great deal of Pains to prove, that *Hippocrates* knew the Circulation of the Blood, and that *Dr. Harvey* only revived it. The Substance of what has been said in this Matter, is this: That *Hippocrates* speaks, in one Place, of the usual and constant Motion of the Blood: That, in another Place, he calls the Veins and Arteries the Fountains of Human Nature, the Rivers that water the whole Body, and convey Life; and which, if they be dried up, the Man dies: That, in a third Place, he says, That the Blood-vessels, which are dispersed over the whole Body, give Spirit, Moisture, and Motion, and all spring from one; which one (Blood-vessel) has no Beginning, nor no End; for where there is a Circle, there is no Beginning.

These are the clearest Passages that are produced, to prove that *Hippocrates* knew the Circulation of the Blood; and it is plain from them, that he did believe it as an Hypothesis; that is, in plain *English*, that he did suppose the Blood to be carried round the Body by a constant accustomed Motion: But that he did not know what this constant accustomed Motion was, and that he had not found that Course, which, in our Age, *Dr. Harvey* first clearly demonstrated, will appear evident from the following Considerations. (1.) He says nothing of the Circulation of the Blood in his Discourse of the Heart, where he anatomizes it as well as he could, and speaks of the Ventricles and the Valves, which are the immediate Instruments by which the Work is done. (2.) He believes, that the Auricles of the Heart are like Bellows, which receive the Air to cool the Heart: Now there are other Uses of them certainly discovered, since they assist the Heart in the Receiving of the Blood from the Vena Cava, and the Vena Pulmonaris. This no Man, that knows how the Blood circulates, can be unacquainted with; and accordingly would have been mention'd by *Hippocrates*, had he understood it. (3.) *Hippocrates* speaks of Veins, as receiving Blood from the Heart, and going from it; which also was the constant way of speaking of *Galen*, and all the Antients. Now no Man, that can express himself properly, will ever say, that any Liquors are carried away from any Cistern, as from a Fountain or Source, through those Canals which, to his Knowledge, convey Liquors to that Cistern. (4.) *Hippocrates* says, the Blood is carried into the Lungs from the Heart, for the Nourishment of the Lungs, without assigning any other Reason. These seem to be positive Arguments, that *Hippocrates* knew nothing of this Matter; and, accordingly, all his Commentators, ancient and modern, before *Dr. Harvey*, never interpreted the former Passages of the Circulation of the Blood: Neither would *Vander Linden*, in all Probability, if *Dr. Harvey* had not help'd him to the Notion; which he was then resolved to find in *Hippocrates*, whom he supposed to be not the Father only, but the Finisher also, of the whole Medical Art. It is pretended to by none of the Antients, or rather Admirers of them, after *Hippocrates*. As for *Galen*, any Man that reads what he says of the Heart and Lungs, in the sixth Book of his *De Usu Partium*, must own, that he does not discourse as if he were acquainted with modern Discoveries; and therefore it is not so much as pretended, that he knew this recurrent Motion of the Blood: Which also farther shews, that if *Hippocrates* did know it, he explain'd himself so obscurely, that *Galen* could not understand him; who, in all Probability, understood *Hippocrates's* Text as well as any of his Commentators, who have written since the *Greek* Tongue, and much more since the *Ionic* Dialect, has ceased to be a living Language.

Since the Antients have no Right to so noble a Discovery, it may be worth while to inquire, to whom of the Moderns the Glory of it is due; for this is also exceedingly contested. The first Step that was made towards it, was, the finding that the whole Mass of the Blood passes through the Lungs, by the Pulmonary Artery and Vein.

The first that I could ever find, who had a distinct Idea of this Matter, was *Michael Servetus*, a *Spanish* Physician, who was



was burnt for Arianism at *Geneva*, near 140 Years ago. Well had it been for the Church of *Christ*, if he had wholly confin'd himself to his own Profession ! His Sagacity in this Particular, before so much in the Dark, gives us great Reason to believe, that the World might then have had just Cause to have blessed his Memory. In a Book of his, intituled, *Christianismi Restitutio*, printed in the Year 1553. he clearly asserts, that the Blood passes through the Lungs, from the Right to the Left Ventricle of the Heart, and not through the Partition which divides the two Ventricles, as was at that time commonly believed.

*Realdus Columbus*, of *Cremona*, was the next that said any thing of it, in his Anatomy, printed at *Venice*, 1559. in *Folio*, and at *Paris*, in 1572. in *Octavo*, and afterwards elsewhere. There he asserts the same Circulation through the Lungs, that *Servetus* had done before ; but says, that no Man had ever taken Notice of it before him, or had written any thing about it : Which shews, that he did not copy from *Servetus* ; unless one should say, that he stole the Notion, without mentioning *Servetus's* Name ; which is injurious, since, in these Matters, the same thing may be, and very often is, observed by several Persons, who never acquainted each other with their Discoveries. But *Columbus* is much more particular ; for he says, That the Veins lodge the whole Mass of the Blood in the Vena Cava, which carries it into the Heart, and so it is thrown into the Left Ventricle ; and by the Aorta again, when enliven'd by the Air, diffused thro' the whole Body.

Some Years after appear'd *Andreas Cæsalpinus*, who printed his *Peripatetical Questions* at *Venice*, in *Quarto*, in 1571. and afterwards, with his *Medical Questions*, at the same Place, in 1593. He is rather more particular than *Columbus*, especially in examining how Arteries and Veins join at their Extremities ; which he supposes to be by opening their Mouths into each other : And he uses the Word *Circulation* in his *Peripatetical Questions*, which had never been used in that Sense before. He also takes Notice, that the Blood swells below the Ligature in Veins, and urges that in Confirmation of his Opinion. Some Hints of this Matter are likewise to be found in *Constantius Varolius*, who printed his Anatomy in the Year 1591.

At last Dr. *William Harvey* printed a Discourse on purpose, upon this Subject, at *Frankfort*, in 1628.

This gave him a just Title to the Honour of so noble a Discovery, since what his Predecessors had said before him was not enough understood, to form just Notions from their Words. One may also observe how gradually this Discovery, as all abstruse Truths of human Disquisition, was explained to the World. *Hippocrates* first talk'd of the usual Motion of the Blood. *Plato* said, That the Heart was the Original of the Veins, and of the Blood, that was carried about every Member of the Body. *Aristotle* also, somewhere, speaks of a recurrent Motion of the Blood. Still all this was only Opinion and Belief : It was rational, and became Men of their Genius ; but not having as yet been made evident by Experiments, it might as easily be denied as affirm'd. *Servetus* first saw, that the Blood passes thro' the Lungs ; *Columbus* went farther, and shew'd the Uses of the Valves, or Trap-doors of the Heart, which let the Blood in and out of their respective Vessels, but not the self-same Road. Thus the Way was just open when Dr. *Harvey* came, who built upon the first Foundations : To make his Work yet the easier, the Valves of the Veins, which were discover'd by Father *Paul* the *Venetian*, had not long before been explain'd by *Fabricius ab Aquapendente* ; whence the Circulation was yet more clearly demonstrated.

There was one thing still wanting to complete this Theory, and that was, the Knowledge how the Veins received that Blood which the Arteries discharged : First, it was believed that the Mouths of each sort of Vessels join'd into one another : That Opinion was soon laid aside, because it was found, that the Capillary Vessels were so extremely small, that it was impossible, with the naked Eye, to trace them. This put them upon imagining, that the Blood oozes out of the Arteries, and is absorb'd by the Veins, whose small Orifices receive it, as it lies in the Fibres of the Muscles, or in the Parenchyma of the Bowels ; which Opinion has been generally received by most Anatomists since Dr. *Harvey's* Time : But *Leenuenhoeck* has lately found in several sorts of Fishes, which were more manageable by his Glasses than other Animals, that Arteries and Veins are really continued Siphons, variously wound round each other towards their Extremities, in numberless Mazes, over all the Body : And others have found what he says to be very true, in a Water-newt ; so that this Discovery has passed uncontested. And since it has been constantly found, that Nature follows like Methods in all sorts of Animals, where she uses the same sorts of Instruments, it will always be believed, that the Blood circulates in Men, after the same manner as it does in Eels, Perches, Pikes, Carps, Bats, and some other Creatures, in which *Leenuenhoeck* tried it. Tho' the Ways how it may be visible to the Eye, in human Bodies, have not, that I know of, been yet discovered.

But *Thomas Bartholine* and *Gensentinus* have raised up a modern Rival to *Harvey*, for the Honour of the Discovery of the

Circulation, which is the celebrated Father *Paul*. What they relate amounts only to this ; that in a Manuscript of Father *Paul's*, which was left in the Hands of Father *Fulgentius* at *Venice*, the Particulars of the true Circulation of the Blood, as publish'd by *Harvey*, are contain'd ; and hence they conclude, that he communicated it to *Fabricius ab Aquapendente*, who told it to *Harvey* whilst he was at *Padua*.

But the Truth of the Affair appears to be ; that after *Harvey's* Return to *England*, he made a Present of his Book, just then publish'd, to the *Venetian* Embassador ; who, immediately after going home, lent it to Father *Paul*, whose Curiosity led him to make some Extracts from it, which are contain'd in the Manuscript above-mention'd.

What made this Story the more likely to be true, was Father *Paul's* Sagacity in Anatomical Researches, who first observed the Contraction and Dilatation of the Pupil of the Eye ; and is said to have communicated to *Fabricius ab Aquapendente* his Knowledge of the Valves in the Veins.

Besides this Discovery of the Circulation, *Harvey* made several with respect to the Generation of Animals.

His Works are, *Exercitatio Anatomica de Motu Cordis & Sanguinis in Animalibus*, *Francof.* 1628. 4to. *Lugd. Batav.* 1639. 4to. *ibid.* 1647. *Cum Refutationibus Æmilii Parisiani*, 1647. *Patavii*, 1643. It is likewise in a Book, intituled, *Recentiorum Disceptationes de Motu Cordis, &c.* printed *Lugd. Batav.* 1647. 4to. Then it appeared in *English*, printed at *Rotterdam*, 1671. His *Exercitationes duæ de Circulatione Sanguinis*, *Rotterdam*, 1649. *Epistola ad Johan. Dan. Horstium de Inventis Asellii & Pequeti*, are in the Decad of *Medical Epistles* of *Joh. Dan. Horstius*.

*Exercitationes de Generatione Animalium*, *Londin.* 1651. 4to. *Amstel.* 1651. 1652. 12mo. *Hagæ Comitum*, 1680. 12mo. In *English* at *London*, 1653.

#### CASPAR BARTHOLINUS.

This Author was a *Dane*, born in 1585. After visiting most of the most famous Universities, and attending the Lectures of the most celebrated Professors, he was made Royal Professor at *Copenhagen* ; then turn'd his Studies to Divinity, and died in 1630. in the Forty-fifth Year of his Age. He was Cotemporary with *Harvey*.

His Anatomical Works are in much Esteem, which are his *Anatomicæ Institutiones*, printed *Albiæ*, 1661. *Argentorati*, 1626. *Rostoch.* 1626. *Goslarie*, 1632. *Oxonie*, 1632. These Institutions were enlarged by *Bartholine* the Son, and publish'd in different Years at different Places. They were publish'd in the German Tongue, *Hafniæ*, 1648. His *Controversiæ Anatomicæ*, *Goslarie*, 1631. His *Enchiridion Physicum*, *Argentina*, 1652.

To *Caspar Bartholine* I shall subjoin his Son and Grandson, tho' not properly belonging to this Place.

#### THOMAS BARTHOLINUS.

This Physician was the Son of *Caspar Bartholine*, and born at *Copenhagen* in 1616. He was Professor at the Place of his Birth, and enrich'd Anatomy with many useful Discoveries. He claims the Glory of having first observed the Lymphatic Vessels ; but the Pretensions of *Olaus Rudbeckius*, and Dr. *Jolliffe*, an *English* Physician, to the same Discovery, render his Title to it doubtful. *Rudbeckius* publish'd his Observations much about the same time as those of *Bartholine* appear'd ; and Dr. *Jolliffe* shew'd the same to several of his Friends, but without publishing any thing concerning them. The Discoveries being undoubted, and all three working upon the same Materials, there seems no Reason to deny any of them the Glory of their Inventions. The thing which they found was, that there are innumerable small clear Vessels in many Parts of the Body, chiefly in the Liver and Spleen, which convey a colourless Juice either into the common Receptacle of the Chyle, or else into the Veins, there to mix with the Blood.

He also pretends a Title to the Discovery of the *Thoracic Duct* ; but this is also disputed with him by *Van Horne* and *Peper*.

His Works are *Anatomia ex Caspari Bartholini parentis Institutionibus, &c.* *Lugd. Batav.* 1641. *ibid.* 1645. *ibid.* 1651. *Hagæ Comitum*, 1655. *ibid.* 1660. *ibid.* 1663. *Roterod.* 1669. *ibid.* 1673. *Anatomica Aneurismatis dissecti Historia*, *Panormi*, 1644. *De Lacteis Thoracicis in Homine Brutiſq; nuperrime observatis Historia Anatomica*, *Hafniæ*, 1652. *Londini*, 1652. *Parisiis*, 1653. *Genevæ*, 1654. *Lugd. Batav. & Ultra Traject.* 1654. It is also in the *Messis Aurea* of *Siboldus Hempsterhuis*, printed *Heidelbergæ*, 1659. and with his own *Opuscula*, *Hafniæ*, 1670. *Vasa Lymphatica, nuper Hafniæ in Animantibus inventa, & in Homine*, *Hafniæ*, 1653, 1654. *Parisiis*. They are also extant with *Siboldus Hempsterhuis*, *Messis Aurea*, *Heidelbergæ*, 1659. and also with his own *Opuscula*, printed *Hafniæ & Amstelodami*, 1670. *Historia nova Vasorum Lymphaticorum*, publish'd with *Le Clerc* and *Maugelus's Bibliotheca Anatomica*, printed *Genev.* 1685. *Dubia Anatomica*, *Hafniæ*, 1653. *Parisiis*, 1653. *Defensio Vasorum Lactorum, &c.* *Hafniæ*, 1655. and



with his *Opuscula Anatomica*, 1670. *Historiarum Anatomicarum Centuria prima & secunda*, Hafniae, 1654. *Historiarum Anatomicarum Centuria tertia & quarta*, ibid. 1657. *Historiarum Anatomicarum Cent. quinta & sexta*, Hafniae, 1661. *Vindiciae Anatomicae*, Hafniae, 1648. *Opuscula nova Anatomica*, Hafniae & Amstelod. 1670. *Observationes Anatomicae Petri Pawi*, printed in his third and fourth Centuries of his own Observations, Hafniae, 1657. *Collegium Anatomicum*, Hafniae, 1651. *Specilegium primum ex Vasis Lymphaticis*, Hafniae, 1655. 1658. *Rosstochii*, 1660. *Amstelodami*, 1661. Also with his *Opuscula*, printed Hafniae, 1670. *Specilegium secundum ex Vasis Lymphaticis*, Amstelod. 1660. *Specilegia bina ex Vasis Lymphaticis*, Amstelodami, 1661. And with his own *Opuscula nova Anatomica*, Hafniae, 1670. *Dissertatio Anatomica de Hepate defuncto*, Hafniae, 1661. And with his *Opuscula Anatomica nova*, Hafniae, 1670. *Responsio de Experimentis Anatomicis Bilsonianis*, &c. Hafniae, 1661. *Amstelodami*, 1661. And with his *Opuscula nova Anatomica*, Hafniae, 1670. *De Hepatis exautorati Causa desperata*, Hafniae, 1666. And with his *Opuscula Anatomica nova*, Hafniae, 1670. *De Cerebri substantia pingui*, &c. Hafniae, 1669. *De Anatome Practica ex Cadaveribus morbofis adornanda Consilium*, &c. Hafniae, 1674. *De Pulmonum Substantia & motu Diatribe*, Hafniae, 1663. *Lugd. Batavor.* 1672.-----  
Vander Linden, p. 1003.

He left two Sons, *Caspar* and *Thomas*; the former of whom published many of his Father's Works. He also wrote upon the Ovaries of Women, Generation, and the Structure of the Diaphragm; and is said to have first discovered the inferior and lesser Salivary Ducts. He farther speaks of a new Method of preparing the Viscera for Anatomical Uses.

His Anatomical Works are, *De Ovariis Mulierum*, &c. *Romae*, 1677. *Amstelodami*, 1678. *Norimbergae*, 1679. *Epistola de Nervorum Usu in Musculorum Motu*, *Parisiis*, 1676. *Diaphragmatis Structura nova*, *Parisiis*, 1676. *Administrationum Anatomicarum Specimen*, publish'd with *Michaelis Lyseri Cultrum Anatomicum*, *Francfurti*, 1679. *Exercitationes Miscellaneae*, 1675. There are likewise several of his Anatomical Pieces printed in the *Acta Hafniensia*.

From the Time of the great *Harvey*, there have been such a Multitude of Anatomical Writers, that a particular Detail of them would of itself require a Volume. I shall therefore only give an alphabetical Catalogue of the principal, and take some Notice of their Discoveries, when of any Importance. I must, however, remark, that it would have been fortunate for Anatomy, and Students in this Science, if Authors could have contented themselves with publishing their own Discoveries, and animadverting upon the Errors of others: But, instead of doing this, many have thought, that a Discovery, sometimes trifling enough, or a Professor's Chair, have intitled them to write an entire System; thus making it necessary to search large Volumes for Discoveries, which a few Pages were sufficient to contain.

## ALBINUS,

A Professor at *Leyden*, has published some Anatomical Pieces, which are in much Esteem; and the World is in Expectation of more from the same Hand. His Works which have come to my Knowledge, are as follows:

*Historia Musculorum Hominis*, *Lugdun. Batav.* 1734. 4to.  
*Icones Ossium Fetus humani; accedit Osteogeniae brevis Historia*, *Lugdun. Batav.* 1737. 4to.  
*Tabulae Anatomicae*, *Lugdun. Batav.* 1741. Fol.  
The last is not yet completed.

## BELLINI (LAURENTIUS).

His Anatomical Works are,

*De Structura Renum.*

*Gustus Organum novissime detectum.*

Of both which there have been several Editions. I have seen one printed *Lugduni Bat.* 1711.

## BERGERUS (JOHANNES GODOFREDUS).

He was of *Hall* in *Saxony*, but Professor of Physic at *Wirttemberg*.

His principal Anatomical Piece is an Epistle concerning the Division of the Aorta, principally with respect to its ascending Branches.

## BESLERUS (MICHAEL RUPERTUS).

He was of *Nuremberg*, born 1607, died 1661. according to *Goelicke*. His Anatomical Works are,

*Admirandae Fabricae humanae Mulieris partium Generationi potissimum inservientium, & Fetus, fidelis, quinque Tabulis, ad magnitudinem naturalem & genuinam, typis aeneis impressis, haecenus nunquam visa, Delineatio.* *Norimbergae*, apud *Jeremiam Dummerum*, 1640. in Fol.

*Observatio Anatomico-medica singularis cujusdam, Calendar. Januar. 1644. tres filios naturalis magnitudinis viventes, enixa. Puerpera vero retentis secundinis extremum quasi halitum spirabat, intra aliquot horarum spatium, dextra divinitus adjuvante, summa cum adstantium admiratione & stupore, feliciter evasit.* *Norimbergae*, 1644. in 4to.

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## BIDLOO (GOTTOFREDUS).

He was Professor, at *Leyden*, of Surgery and Anatomy. He publish'd a hundred and five magnificent Figures of different Parts of the Body, *Amstelodam.* 1685. in a very large Folio, some of which are said not to be according to the Life. *Cowper* corrected these.

*Opera omnia Anatomico-Chirurgica edita & inedita*, *Lugdun. Batav.* 1715.

His *Exercitationum Anatomico-Chirurgicarum Decas* was printed *Lugdun. Bat.* 1704.

## BLANCARDUS (STEPHANUS)

Publish'd some Anatomical Pieces, which are said to be very indifferent Compilations.

## BLASIUS (GERHARDUS)

Publish'd several Anatomical Treatises, as, *Commentarius in Syntagma Anatomicum Johannis Veslingii, cum Figuris*, *Amstelodam.* 1659. 4to.

This was reprinted at the same Place, 1666. 4to. This Edition is said to be the best.

*De Renibus monstruosis*, published with *Bellini Exercitat. Anatomica de Struct. Renum*, 1665. 12mo.

*Anatome contracta*, *Amstelodam.* 1666. 12mo.

*Anatome Medullae Spinalis, & Nervorum inde provenientium*, *Amstelod.* apud *Casparum Commelinum*, 1666. in 12mo.

*Observata Anatomica in Homine, Simia, Equo, Vitule, Testudine, Echino, Glire, Serpente, Ardea, variisque Animalibus aliis. Accedunt extraordinaria in Homine reperta, Praxin Medicam aequae ac Anatomem illustrantia*, *Lugd. Batav. & Amstelod.* apud *Gaasbeek*, 1674. in 8vo.

*Zootomiae seu Anatomies variorum Animalium pars prima*, *Amstelod.* apud *Abrahamum Wolffgang*, 1676. in 8vo.

*Anatome Animalium Terrestrium variorum, Volatilium, Aquatilium, Serpentum, Insectorum, Ovorumq; Structuram naturalem, ex Veterum, Recentiorum, propriisq; observationibus proponens, Figuris variis illustrata*, *Amstelod.* apud *Viduum Johannis a Someren*, 1681. in 4to.

## BOHNIUS, (JOHANNES)

Professor of Anatomy at *Leipfic*. Several Anatomical Observations are dispersed in his Works, the principal of which are relative to the Biliary Ducts, and Bile.

## BONETUS (THEOPHILUS)

Collected with immense Labour, and publish'd, a prodigious Number of Dissections, which had been made upon Bodies which died of Distempers, or Casualties, thereby excellently explaining the immediate Causes of Diseases and Death. This Work is, perhaps, the most valuable Piece which the Moderns have produced, and the best adapted to render a Physician perfectly acquainted with the Indispositions of the human Body.

No Physician should be a Day without consulting this Author.

His large Work, intitled, *Sepulchretum sive Anatomia Practica*, was first published in two Volumes, *Genevae*, 1679. Fol.

*Mangerius* published another Edition, with considerable Additions, in three Volumes, *Lugd.* 1700.

There is also another Piece on the same Subject, intitled, *Prodromus Anatomiae practicae, sive de abditis Morborum Causis, ex Cadaverum Dissectione revelatis, Laborum primis Pars prima, de Doloribus capitis, ex illius apertione manifestis*, *Genevae*, apud *Franciscum Asiege*, 1675. in 8vo.

## BONTIUS (JACOPI)

Publish'd some Anatomical Observations, which are extant, amongst other Treatises, in his *Medicina Indorum*, *Lugd. Batav.* 1642. 12mo. *Amstelodam.* 1658. 12mo.

They are also amongst his *Opuscula varia*, *Amstelodam.* 1658. Fol.

These are also printed with *Prepper Stephanus's Medicina Aegyptiorum*, *Parisiis*, 1646. 4to. and *Lugd. Bat.* 1719. 4to.

## BORELLIUS (ALPHONSUS)

Gave a Mechanical Account of the Motion of Animals, drawn from the Structure of the Parts. As he had the Advantages of Dr. *Lover's* Discoveries, with respect to the Order of the muscular Fibres of the Heart, he was enabled to give a Solution of all the Appearances of the Motion of the Heart, and of the Blood in the Arteries, upon Mathematical and Mechanical Principles. His Anatomical Works are,

*De Renum Usu Judicium*, publish'd with *Bellini de Structura Renum*, *Argentorati*, 1664. 8vo.

*De Motu Animalium*, publish'd in the *Bibliotheca Anatomica* of *Manger* and *Le Clerc*.

## BRIGGS (WILLIAM)

Wrote an accurate Description of the Eye, with the Method of dissecting it, intitled, *Ophthalmographia*, *Cambridge*, 1673. 8vo. This is also extant in *Mangerius's Bibliotheca Anatomica*.



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From the Structure of the Eye he form'd a Theory of Vision, which is extant in the *Acta Eruditorum*, 1683.

He discover'd, that in the *Tunica Retiformis*, which is contiguous to the vitreous Humour, the Filaments of the Optic Nerve there expanded lie in a most exact and regular Order, all parallel one to another; which, when they are united afterwards in the Nerve, are not shuffled confusedly together, but still preserve the same Order till they come to the Brain. The crystalline Humour had already been discover'd to be of a double convex Figure, made of two unequal Segments of Spheres, and not perfectly spherical, as the Antients thought: So that this farther Discovery made by Dr. Briggs, shews evidently, why all the Parts of the Image are so distinctly carried to the Brain, since every Ray strikes upon a separate Filament of the Optic Nerve; and all those Strings so struck are moved equally at the same time.

He also describes the Ducts which convey Moisture to the Eyes, from the Glands in the Corners thereof, for the Convenience of their Motion in the Orbit.

BROWN, (JOHN)

A Surgeon of Saint Thomas's Hospital, wrote an Epistle concerning the glandulous Substance of the Liver.

BRUNNERUS (JOHANNES CONRADUS)

Wrote about the Pancreas, Intestinal Glands, and the Lymph. His Work is intitled, *Experimenta nova circa Pancreas*, Amstelodami, 1683. 8vo.

CASSEBOHM (JOAN. FREDERICUS)

Wrote an Anatomical Work, under the following Title: *Tractatus quatuor Anatomici de Aure humana, tribus Figurarum Tabulis illustrati, Auctore Joan. Frid. Cassebohm, Halæ Magd.* 1734. in 4to.

CHARLTON (WALTER)

Publish'd some Anatomical Works:

*Exercitationes Physico-Anatomicæ, sive Oeconomia Animalis, novis in Medicina Hypothesibus superstructa, & Mechanicè explicata, Londini, apud R. Danielis, & J. Redmannum*, 1659. in 12mo. Amstelodami, apud Job. Ravensleyn, 1659. in 12mo. Lugduni Batavorum, apud Petrum de Graaf, 1678. in 12mo. Hagæ Comitum, apud Arnoldum Leers, 1681. in 12mo.

*Exercitationes Pathologicæ, in quibus Morborum penè omnium Natura, Generatio, & Causæ ex novis Anatomicorum inventis sedulo inquiruntur, Londini, apud Thomam Newcomb, 1661. in 4to.*

*Onomasticon Zoinon plerorumque Animalium Differentias & Nomina propria pluribus Linguis exponens. Cui accedunt Mantissa Anatomica, & quædam de variis Fossilium Generibus. Londini, apud Jacobum Allestry, 1668. in 4to. Ibidem apud eundem, 1671. in 4to. Oxonii, 1673. in Fol. min.*

CHESELDEN (WILLIAM)

Publish'd the ANATOMY OF THE HUMAN BODY, of which there have been five Editions, the last of which was printed at London, 1740. This Work is interspersed with many curious Chirurgical Observations; and is illustrated with forty accurate Copper-plates.

He also lately publish'd an Osteology, with magnificent Figures. In this there is an accurate Account of the Diseases of the Bones.

LE CLERC, (DANIEL)

Together with Mangetus, publish'd the *Bibliotheca Anatomica*, which is a Collection of Anatomical Authors. See MANGETUS.

COWPER (WILLIAM)

Publish'd Bidloo's Anatomical Figures, with many Additions and Improvements.

This has lately been reprinted in Holland, under the Direction of Albinus.

He wrote also excellently on the Muscles. His Works are interspersed with many curious Chirurgical Observations.

This Author is said to be the first who gave a Figure of the Thoracic Duct, as it is found in human Subjects; whereas preceding Anatomists delineated it from Brutes.

He also discover'd certain Glands in the Urethra, which have been since called *Glandule Cowperi*; but Cheselden disputes their Existence.

DEUSINGIUS (ANTONIUS)

Was Author of a great many Books; an Account of which may be seen in *Junder Linden*. Some of these were Anatomical; but I don't know that he made any particular Discoveries.

DIEFENBROECK (I-BRANDUS de)

Was Professor of Anatomy at Utrecht. Goellicke blames him for not publishing his Discoveries separately, instead of writing a

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whole Body of Anatomy; a Fault common to him, with a Multitude of other Writers. He also accuses him of making tedious Digressions, sometimes not much to the Purpose; and he farther says, his Discoveries are not always to be depended upon, some of them being rather the Offspring of Imagination, than the Result of Experience. His Figures are not remarkably exact, for which he blames his Engraver in his Preface.

His Works are, *De Peste Libri quatuor, Arenaci*, 1646. Amstelodami, 1665. *Disputationum Practicarum Pars prima & secunda de Morbis Capitis & Thoracis, Trajecti ad Rhenum*, 1664. *Anatome Corporis humani, &c. Ultrajecti*, 1672. Genevæ, 1679. Lugduni, 1679. These two last-mention'd Editions are vastly more correct than the others, and adorned with far correcter Plates.

DIONIS.

He was Demonstrator of Anatomy at the Royal Garden at Paris, where he had great Opportunities of dissecting Bodies. He publish'd a Book on the Subject of Anatomy, which is in pretty good Esteem, and of which there have been many Editions.

Dionis has had an Honour done him, which very few European Authors have attain'd to, which is to have his Anatomy translated into the Tartar Language, now used at the Court of China. This was done by Father Parenni, a Jesuit Missionary, at the Command of Cam-Hi, Emperor of China, who died in 1722. But this was a Compliment paid Dionis by his Countryman, the Translator, and not by the Emperor; for Parenni's Instructions were to translate the best European System of Anatomy.

DOUGLAS (JAMES).

This Gentleman was very eminent in the Practice of Midwifry, and an accurate Anatomist. His Memory is too fresh to make any farther Account of him necessary. His principal Anatomical Works are,

*Bibliographiæ Anatomicæ Specimen*, which was first printed at London, and afterwards, with Additions, at Leyden, by Albinus, 1734. Octavo.

*Myographiæ comparatæ Specimen*, London, 1707. In this Book, the Author remarks the Differences betwixt the Muscles in Men and in Dogs.

This was translated into Latin, and printed at Leyden, 1729.

*A Description of the Peritonæum*, London, 1730. Dr. Freind, in the first Volume of his History of Physic, speaking of the Operation for a Hernia, says, that to form a right Notion of the Distention to which the Peritonæum is subject, one ought to see the curious Preparations of that diligent and accurate Anatomist, Dr. Douglas, who is the first that has given us any true Idea of the Peritonæum; a Part which is much concerned, and whose Structure should be so much consider'd, not only in this Operation, but in the High Way for cutting for the Stone. He too is the first, who has plainly shewn, that the Elongation of the external Lamella of the Peritonæum does not form the vaginal Coat of the Testicles, as Authors say, but a Coat peculiar to the seminal Vessels, which he very properly calls *Tunica Vasorum Spermaticorum propria*. And he afterwards observed, in reading Paulus, that this Coat was known to, and described by him, by the Name of *ἐλικοειδής*, from the many Contortions there are in those Vessels which it covers.

DRAKE, (JAMES)

An English Physician. His Work is intitled *Anthropologia nova*, or, *A New System of Anatomy*, of which I have seen two Editions. A great deal of the first Edition is left out in that of 1717. He had some very singular Notions with respect to the Pile, and the Catamenia.

DRELINCOURT, (CHARLES)

A Frenchman, was a celebrated Professor of Anatomy at Leyden, and wrote very well on many Anatomical Subjects. His Works, principally relating to Anatomy, are,

*De Partu Oestimestri vivaci Diatriba*, L. Bat. 1653. 12mo.

*Prælium Anatomicum*, 1672. 1680.

Both these are amongst his *Opuscula*, L. Bat. 1680. 12mo. *Idem, Hagæ*, 1727.

*De humani Fetus Membranis Hypomnemata*, Lugd. Bat. 1685. 12mo.

*Experimenta Anatomica ex Vivorum Sectionibus petita*, Lugd. Bat. 1681. 1682. 12mo.

This Treatise is in Manget's *Bibliotheca Anatomica*; as also some Pieces of the same Author, intitled *De Conceptu*; *De Semine Virili*; item, *De Semine Muliebri*, *Ovis*, *Utero*, *Tubis Uteri*; cum *Corollaris de humano Fætu*.

He was Author of many other Medicinal Pieces.

DUPRE.

Goellicke mentions this Author, and informs us, that he published a Description of five Pair of Muscles, which are concerned in moving the Head in different Directions, and which are inserted into the first and second Vertebra of the Neck. He,



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He, according to the same Author, described two Ligaments, which connect the Head either to the first or second Vertebra of the Neck.

## ENT (GEORGE)

Was an *English* Physician, and President of the College of Physicians. He wrote an Apology for the Circulation of the Blood, in Answer to *Æmilius Parisianus*: This was printed at London, 1641. 8vo.

He also published Animadversions on *Malachias Thurston's* Treatise of the Uses of Respiration, London, 1678, 8vo.

This Treatise is in the *Bibliotheca Anatomica* of *le Clerc* and *Mauget*.

## EUSTACHIUS.

His *Opuscula Anatomica* was printed Delphis, 1726. 8vo.

FRANCUS, (GEORGIUS FREDERICUS DE FRANCKENEAU)

A *Dane*, wrote a Treatise on the Nails. *Goelicke*.

## GARENGEOT (JAQUES CROISSANT DE)

Wrote an Anatomical Piece under the following Title, which was printed at Paris, 1728. 12mo.

*Mistomie humaine, & canine, ou la Maniere de dissequer les Muscles de l'Homme, & des Chiens; suivie d'une Anologie ou Histoire abrégée des Muscles.*

## GIBSON (THOMAS)

Wrote a Compendium of Anatomy, which is said to have nothing in it new; but to consist entirely of Collections from others. He was an *English* Physician, and Fellow of the College.

## GLISSON (FRANCIS)

Was an *English* Physician, Professor of Physic at Cambridge, and Fellow of the College of Physicians. His principal Discovery was the Duct which conveys the Bile from the Liver to the Gall-bladder. His Works are,

*Anatomia Hepatis, cui præmittuntur quædam ad rem Anatomicam universæ spectantia*, Londini, apud Oëtav. Pullein. 1654. in 8vo. *Amstelodami*, apud *Johan. Ravensleyn*, 1659. in 12mo. *Ibid.* apud *Joh. Janssonium à Wasberge & Elizæum Weyerstraten*, 1665. in 12mo.

At the End of this there is a Treatise on the Lymph.

*Traëtatus de Rachitide, seu Morbo Puerili, Rickets dicto*, Londini, apud *Sadlerum*, 1650. in 8vo. *Ibid.* 1660. in 12mo. *Lugduni Batavorum*, 1671. in 8vo. *Hagæ Comitum*, apud *Arnoldum Lees*, 1682. in 12mo.

*Traëtatus de Natura Substantiæ Energetica, seu de Vita Naturæ, ejusque tribus primis Facultatibus: I. Perceptivâ. II. Appetitivâ; & III. Motivâ, Naturalibus, &c.* Londini, apud *H. Brome & N. Hooke*, 1672. in 4to.

*Traëtatus de Ventriculo & Intestinis; cui præmittitur alius, de partibus continentibus in genere; & in specie, de iis Abdominis.* *Ibid.* apud eundem 1677. in 4to. *Amstelodami*, apud *Jacobum Juniores*, 1676. in 12mo.

The *Anatomia Hepatis*, and *Traëtatus de Ventriculo*, are in *le Clerc's* and *Mauget's Bibliotheca Anatomica*.

## GOELICKE (ANDREAS OTTOMARUS)

Wrote an History of Anatomy, under the Title of *Historia Anatomiciæ novæ æque ac antiqua, Halæ Magdeburgicæ*, 1713. 8vo.

## GRAAF (REGNERUS DE)

A Physician of Delft in Holland. He published the following Anatomical Pieces.

*Disputatio Medica, de Natura & Ufu Succi Pancreatici*, Lugd. Batav. ex Officina Hackiana, 1664. in 12mo. *Traëtatus Anatomico-Medicus, de Succi Pancreatici Natura & Ufu. Accessit Epistola, de Partibus Genitalibus Mulierum.* Lugduni Batavorum, 1671. in 8vo.

This Treatise is in the *Bibliotheca Anatomica*.

*De Virorum Organis Generationi inservientibus: de Clysteribus: de Ufu Siphonis in Anatomia.* Lugd. Batav. & Roterdami, ex Officina Hackiana, 1668. in 8vo. *Ibidem*, 1670. in 8vo. *Ibid.* 1672. in 8vo.

This is also in the *Bibliotheca Anatomica*.

*Epistola de nonnullis circa Partes Genitales Inventis novis*, Lugd. Bat. 1668. in 12mo.

*De Mulierum Organis Generationi inservientibus, Traëtatus novus, demonstrans, tam Homines & Animalia cætera omnia, quæ Vivipara dicuntur, haud minus, quam Ovipara, ab Ovo originem ducere.* *Ibidem* ex Officina eadem, 1672. in 8vo.

This is also in the *Bibliotheca Anatomica*.

*Defensio Partium Genitalium.* Lugd. Bat. 1673. in 8vo.

This is also in the *Bibliotheca Anatomica*.

*Opera omnia*, Lugduni Batavorum ex Officina Hackiana, 1677. in 8vo.

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Two Dissertations also of this Author are extant in the *German Ephemerides*; one on the Indurations of the carotid Arteries; the other on a monstrous Uterus.

Many new Things concerning the respective Subjects he treats of, are contained in the Works of this Author; but he is charged with borrowing them from *Van Horne*, whose Pupil he was. 'Tis, however, remarkable, that his Invention of a Syringe gave Birth to all the Discoveries in Anatomy which have, since his Time, been made by means of Injections.

## GRASECCIUS, (GEORGIUS)

Of *Straßburgh*, publish'd an Anatomical Work under the following Title:

*Μυεσκοπικὸν θεατὲρ. In quo Fabrica humani Corporis Musculum repræsentantis affubri demonstratur, una cum Icone Musculi Homini dissecti seorsim expressa.* Argentorati, apud *Johan. Carolum*, 1605. in 8vo.

## GREW (NEHEMIAH)

Wrote a comparative Anatomy of the Stomach and Intestines, which is, I think, published at the End of his *Catalogue of Rarities*, &c.

He also wrote many Treatises on the Anatomy of Vegetables.

## HALLER (ALBERTUS)

Wrote a Treatise, intituled, *De Musculis Diaphragmatis Dissertatio Anatomica*, Bernæ, 1733. 4to.

## HAVERS, (CLOPTON)

An *English* Physician. He wrote admirably well on the Bones, and made some considerable Discoveries with respect to the Periosteum, and the Marrow. He discovered, in every Joint, particular Glands, out of which issues a mucilaginous Substance, whose Nature he examined by numerous Experiments, which, with the Marrow supplied by the Bones, always serves to oil the Wheels, that so our Joints and Muscles might answer those Ends of Motion, for which Nature designed them. This was a very useful Discovery, since it has made abundance of Things, that were obscure in that Part of Anatomy, plain, and easy to be understood: And, among other things, it shews the Use of that excellent Oil which is contained in our Bones, and there separated, by proper Strainers, from the Mass of the Blood; especially, since, by a nice Examination of the true inward Texture of all the Bones and Cartilages of the Body, he shew'd how this Oil is communicated to the Mucilage, and so united, as to perform their Office.

*Novæ quædam Observationes de Ossibus*, Lugd. Batav. 1734. 8vo.

## HEISTER, (LAURENTIUS)

A celebrated Professor at *Helmstad*, published a very valuable Piece of Anatomy, intituled, *Compendium Anatomicum, Veterum, Recentiorumque Observationes brevissimè complectens.* Altorfii, 1717. 4to.

*Altorfii & Norinbergæ*, 1719. 1727. and 1732.

An *English* Translation of this Book was published at London, 1721.

## HEMSTERHUY (SYBOLDUS)

Published some Anatomical Collections under the following Title:

*Messis aurea, seu Collectanea Anatomica, continentia trium Præstantissimorum Anatomicorum Opuscula: 1. Joh. Pecqueti Experimenta nova Anatomica. 2. Thomæ Bartholini de Lacteis Thoracis Historiam Anatomicam, cum ejusdem, de iisdem Duobus: & Vasorum Lymphaticorum Historiam novam. 3. Olai Rudbeck, Duct. Hepaticos aquosos: Vasa Glandularum Serosa: Observationes: Epistolæ Variorum: Ejusdem de Vasis Lymphaticis Tabulas 13. æri incisus*, Lugduni Batavorum, 1654. in 12mo. *Heidelbergæ*, Typis *Adriani Wÿngaerden*, 1659. in 8vo.

## HIGHMORE (NATHANAEL)

Published an Anatomical Work under the Title of, *Corporis humani Disquisitio Anatomica, &c.* Hagæ Comitum, 1651. Fol.

The large Cavity of the upper Jaw is called from him, *Antrum Highmorianum*; but he is not the first Describer of it; for *Casserius* takes Notice of it under the Name of *Antrum Genæ*.

## HOBOKEN, (NICOLAUS)

A French Author, publish'd, according to *Goelicke*, a Treatise on the Method of dissecting, in French. His other Anatomical Works are, *Anatomia Secundinæ humanæ, quindæ Figuris ad vivum propriâ Auctoris manu delineatis illustrata. Cum annexo Spicilegio Epistolarum, rem potissimum generatoriam referentium.* Trajecti ad Rhenum, apud *Johan. Ribbium*, 1669. in 8vo. *Ibidem*, 1672. in 8vo.

*Cognitio Physiologica Medica, accuratissimâ & clarissimâ Methodo tradita.* Ultrajecti apud *Henr. Versteegh*, 1670. in 4to. *Ibidem* apud *Johannem Van de Water*, 1685. in 4to.

Anato-



# A N A

*Anatomica Secundinæ humanæ repetita, aucta, roborata, & quadraginta quatuor Figuris, propriâ Auctoris manu delineatis, insuper illustrata: quæ præter novissimè observatam Naturam ac Constitutionem universæ Secundinæ illius, ac partium singularum usum quoque & utilitatem docet. Præmittuntur Literæ D. Henrici Euffonii cum Auctoris Responsionibus. Ibid. apud Joh. Ribbium, 1675. in 8vo.*

*Anatomia Secundinæ Vitulinæ, triginta octo Figuris, propriâ Auctoris manu delineatis, illustrata: Ultrajeeti, apud Johan. Ribbium, 1675. in 8vo.*

HOFFMAN, (JOHANNES MAURITIUS)

Professor of Physic in the University of *Altorff*, published an Anatomical Work under the Title of,

*Dissertationes Anatomico-Physiologicæ: ad Viri Clarissimi, Johannis Van Horne, in Universitate Lugduno Batav. Profess. quondam Meritissimi, Microcosmum, Annotatæ, Observationibus & Experimentis Anatomicis recentioribus variis illustratæ. Altdorffii, apud Henricum Meyerum, 1680. in 4to.*

HORNE (JOHANNES VAN)

Was Professor of Anatomy at *Leyden*. His Anatomical Pieces bear a very good Character. He has the Reputation of having discovered the Thoracic Duct, and is said to be the first who was acquainted with the true Structure of the Testicles. He also gave the Name of *Ovaria* to what was before called the *Tyfes* of Females. *De Graaf* is said to be much obliged to him for the Discoveries he has published with respect to the Parts of Generation. His Works are,

*Novus Ductus Chyliferus, nunc primum delineatus, descriptus, & Eruditorum Examini expositus, Lugduni Batav. apud Franc. Hackium, 1652. in 4to.*

*Μετέκρησις, seu brevis Manuductio ad Historiam Corporis humani: in Gratiam Discipulorum edita, Lugduni Batavorum, apud Jac. Chovet, 1660. in 12mo. Ibidem, apud eundem, 1662. in 12mo. Ibidem, apud eundem, 1663. in 12mo. Lipsiæ apud Johannem Frischium, 1675. in 12mo.*

*Leonardi Botalli Opera omnia, Lugduni Batav. apud Daniel. & Abrah. à Gaasbeeck, 1660. in 8vo.*

*Prodromus Observationum suarum circa Partes Genitales in utroque sexu, Lugd. Batav. 1668. in 12mo.*

*Observationes Anatomico-Medicæ, Amstelodami, apud Abrah. Wolfgang, 1674. in 12mo.*

HORSTIUS, (JOHANNES DANIEL)

Professor at *Marpurg*, was Author of the following Anatomical Pieces:

*Decas Observationum & Epistolarum Anatomicarum, quibus singularia scitu digna, Lactearum nempe Thoracicarum & Vasorum Lymphaticorum natura, Embryonisque per os nutritio, atque alia rariora exponuntur. Francof. apud Wilhelmum Serlinum & Georg. Fickwirthum, 1656. in 4to.*

*Anatome Corporis humani, Tabulis comprehensa. Marpurgi, apud Chemlinum, 1639. in 4to.*

HOVIUS (JACOBUS)

Advances, that the Humours of the Eye are perpetually wasting, and as perpetually replenished by the Vessels which terminate in the Eye. That the aqueous Humour may waste, and be restored, is certain; but it is not evident, that the other Humours of the Eye are in the same State; though indeed it should seem necessary for the maintaining their perpetual Transparency and Lustre. I have only seen one Edition of his Book, which is intitled, *Tractatus de circulari Humorum Motu in Oculis, Lugduni Batavorum, 1740. 8vo. cum Figuris.*

KEILL (JAMES)

Was a Native of *Scotland*; he read Lectures in Anatomy at *Oxford*, and afterwards practised Physic with great Reputation at *Northampton*, where he died of a Cancer in his Mouth, much regretted.

His *Anatomy of the human Body abridged* is deservedly in great Esteem, of which there have been a great many Editions printed at *London*. He wrote also some other Treatises relating to Physic.

KERKRINGIUS (JOHANNES THEODORUS)

Wrote the following Anatomical Pieces:

*Specilegium Anatomicum, continens Observationum Anatomicarum rariorum Centuriam unam: necnon Osteogeniam Partium, in quo, quid cuque officulo singulis accedat mensibus, quidque decedat, & in eo per varia immutetur tempora, accuratissimè oculis subjicitur. Amstelodami, apud Andr. Frisium, 1670. in 4to. Ibid. 1673. in 4to.*

*Anthropogenice Ichnographia, seu Conformatio Fetus ab Ovo usque ad Officationis principia, in Supplementum Osteogeniæ Partium, cum Figuris. Ibidem, apud Andr. Frisium, 1670. in 4to.*

This is in the *Bibliotheca Anatomica*.

# A N A

His *Osteogenia Fœtuum* is also in the *Bibliotheca Anatomica*.

KULMUS (JO. ADAMAS)

Published an Anatomical Work, intituled, *Tabulæ Anatomicæ, in quibus Corporis humani, omniumque ejus Partium Structura & Usus brevissimè explicantur, &c. Amstelod. 1732. and in French, ibid. 1734. 8vo.*

LANCISI (J. MARIA)

Wrote a Treatise *De Motu Cordis & Aneurismatibus*, which was printed at *Rome*, and afterwards at *Leyden*, 1740:

*Lancisi Opera omnia, Genev. 1718.*

He also published *Eustachius's* Tables.

LEALIS (LEAL)

In an Epistle to *Dominicus de Marchettis*, has several Discoveries relating to the Spermatie Arteries and Veins, and to the Structure of the Vesiculæ Seminales.

LEEUWENHOEK (ANTONY VAN)

Has obliged the World with a great many Discoveries relative to Anatomy, particularly by means of his Microscopes. It is not possible to give the Particulars of them, unless I was to transcribe his Works. Many detached Pieces of this Author's were published at different times; but his entire Works were printed *Lugd. Batav. 1722.*

This Author has made evident the Anastomoses of the Arteries with the Veins, and discovered a prodigious Number of Animalcula in the Sperm of Male Animals; but the System of Generation, hence deduced, has the Appearance of being utterly false, as is shewn under the proper Article.

LISTER, (MARTIN)

In an Epistle to *Henry Oldenburgh*, has some Particularities relating to the Intestinum Cœcum.

LOWER (RICHARD)

Wrote an excellent Treatise on the Heart, wherein he advances several things which are new, with respect to the spiral Order of the Fibres which compose this Part. There are several Editions of this Work: Those I have seen are,

*Amstelodami, 1669. Londini, 1670.*

*Munet* and *Le Clerc* have also printed it in their *Bibliotheca Anatomica*.

LYSERUS, (MICHAEL)

Of *Leipsic*, was a Pupil, and Favourite of *Thomas Bartholine*, and by his Friendship and Instructions became a very dexterous Anatomist.

The only Anatomical Work he published, is intituled, *Culter Anatomicus*, which contains excellent Instructions for dissecting Bodies with Dexterity: Of this there have been many Editions, as

*Hafniæ, 1653. 8vo. 1665. 8vo.*

*Francofurti, 1679. 8vo.*

*Lugduni Batav. 1731.*

In this last Edition are contained, his *Observationes Medicæ*; the *Observationes Medico-Chirurgicæ Henrici a Moenichen*; and the *Observationes Anatomico-Chirurgicæ Martini Bogdani*.

MALPIGHIUS (MARCELLUS).

This Author flourished in the last Century, and was deservedly celebrated for his great Skill, and singular Sagacity, in Anatomical Researches. His Industry was not confined to the more perfect Animals, but was extended to Insects, and even to Vegetables, to the great Improvement of natural Knowledge, and to his own Honour. He was a Member of the Royal Society.

Amongst other Discoveries, he found by his Microscopes, that the Cortical Part of the Brain consists of an innumerable Company of very small Glandules, which are all supplied with Blood by Capillary Arteries; and that the Animal Spirit, which is separated from the Mass of the Blood in these Glandules, is carried from them into the Medulla Oblongata, through little Pipes, whereof one belongs to every Gland, whose other End is inserted into the Medulla Oblongata; and that these numberless Pipes, which, in the Brain of some Fishes, look like the Teeth of a small Ivory Comb, are properly that which all Anatomists after *Piccolhomini* have called the *Corpus Callosum*, or *The medullary Part of the Brain*.

Before his Time, the Texture of the Tongue was but guess'd at, which occasioned great Disputes concerning the Nature of its Substance, some thinking it to be glandulous, some muscular, and some of a peculiar Nature, not to be matched in any other Part of the Body. This therefore *Malpighius* examined with his Glasses, and discovered, that it was cloathed with a double Membrane; that in the inner Membrane there are abundance of small Papillæ, which have Extremities of Nerves inserted



inserted into them, by which the Tongue discerns Tastes, and that under this Membrane it is of a muscular Nature, consisting of numberless Heaps of Fibres, which run all inanner of ways, over one another, like a Mat.

The Lungs, as most of the other Viscera, were believed to be of a parenchymous Substance, till *Malpighi* found by his Glasses, that they consist of innumerable small Bladders, that open into each other, as far as the outermost, which are covered by the outer Membrane, that incloses the whole Body of the Lungs; and that the small Branches of the Wind-pipe are all inserted into these Bladders; about every one of which, the Veins and Arteries are entwined, in an inconceivable Number of Nets and Mazes, that the inspir'd Air may press upon, or mix with, the Mass of Blood, in such small Parcels as the Antients had no Notion of.

Till *Malpighi* discovered the Texture of the Liver by his Glasses, its Nature was very obscure. But he has found out, that the Substance of the Liver is framed of innumerable Lobules, which are very often of a cubical Figure, and consist of several little Glands, like the Stones of Railins; so that they look like Bunches of Grapes, and are each of them clothed with a distinct Membrane; that the whole Bulk of the Liver consists of these Grape-stone-like Glands, and of divers Sorts of Vessels; that the small Branches of the Cava, Porta, and Porus Biliarius, run through all, even the least of these Lobules, in an equal Number; and that the Branches of the Porta are as Arteries that convey the Blood to, and the Branches of the Cava are the Veins which carry the Blood from, all these little Grape-stone-like Glands. From whence it is plain, that the Liver is a glandulous Body with its proper excretory Vessels, which convey away the Gall, that lay before in the Mass of Blood.

He also discovered, that the Substance of the Spleen deducting the numerous Blood-vessels and Nerves, as also the Fibres which arise from its second Membrane, and which support the other Parts, is made up of innumerable little Cells, like Honeycombs, in which there are vast Numbers of small Glandules, which resemble Bunches of Grapes; and that these hang upon the Fibres, and are fed by Twigs of Arteries and Nerves, and send forth the Blood there purged, into the Ramus Splenicus, which carries it into the Liver; to what Purpose, is not yet certainly discovered.

The Mechanism of the Reins was wholly unknown till *Malpighi* found it out. He by his Glasses discovered, that the Kidneys are not one uniform Substance, but consist of several small Globules, which are all like so many several Kidneys, bound about with one common Membrane; and that every Globule has small Twigs from the emulgent Arteries, that carry Blood to it; Glands, in which the Urine is strained from it; Veins, by which the purified Blood is carried off to the emulgent Veins, thence to go into the Cava; a Pipe, to convey the Urine into the great Basin in the Middle of the Kidney; and a Nipple, towards which several of those small Pipes tend, and through which the Urine oufes out of them into the Basin. This clear Account of the Structure of the Reins has effectually confuted several Notions, that Men had entertained, of some secondary Uses of those Parts; since hereby it appears, that every Part of the Kidneys is immediately and wholly subservient to that single Work of freeing the Blood from its superfluous Serum, and Salt.

He also made some Observations concerning the lymphatic Vessels and the Glands, which are new.

His Works are, his *Observationes Anatomicae de Pulmonibus*, printed along with *Bartholini de Pulmonum Substantia & Motu Diatriba*, *Hafniae*, 1663. *Lugd. Bat.* 1672. *Dissertatio Epistolica de Bombyce*, *Londini*, 1669. *De Viscerum, nominatim Pulmonum, Hepatis, &c. Structura*, *Amstelod.* 1669. *Jenae*, 1677. They are also in *Le Clerc* and *Mangetus's Bibliotheca Anatomica* printed *Genevæ*, 1685. *Epistolæ Anatomicae*, *ib.* 1669. and in *Le Clerc* and *Mangetus's Biblioth. Anatomica*, printed *Genevæ*, 1685. *Anatome Plantarum*, *Lond.* 1675. *Anatomies Plantarum Pars altera*, *ibid.* 1679. *Dissertatio Epistolica de Formatione Pulli in Ovo*, *Lond.* 1666. It is also in the *Biblioth. Anatomica* of *Le Clerc* and *Mangetus*, printed *Genevæ*, 1685. in which are likewise contained his *Dissertationes De Cornuum Vegetatione: De Utero, & Viviparorum Ovis, & de Pulmonibus Epistolæ: His Dissertatio de Polypo Cordis. Epistolæ quaedam circa illam de Ovo Dissertationem, &c. Appendix repetitas auctasque de Ovo incubato Observationes continens.*

#### MANGETUS (JOHANNES JACOBUS)

Was a Physician at *Geneva*, and, together with *Daniel le Clerc*, publish'd the *Bibliotheca Anatomica*, *Genev.* 1685.

This was also reprinted at *Geneva*, 1717.

In this Collection the following Treatises are contained:

*Francisci Glissonii Tractatus de Partibus continentibus in genere, et in specie Abdominis.*

*Marcelli Malpighii de Externo Fetus Organo Exercitatio Epistolica.*

VOL. I.

*Marcelli Malpighii de Cornuum Vegetatione Dissertatio Epistolica.*

*Francisci Glissonii Continuatio Tractatus de Partibus Continentibus in Genere, & in Specie de iis Abdominis.*

*Marcelli Malpighii Exercitatio de Omento, Pinguedine, & Adiposis Duobus.*

*Francisci Glissonii Tractatus de Ventriculo & Intestinis.*

*Thomæ Willis Primarum Viarum Descriptio.*

*Johannis Conradi Exercitatio Anatomica Medica prima de Glandulis Intestinorum.*

*Johannis Conradi Anatome Ventriculi Gallinacci.*

*Johannis Conradi Exercitatio secunda de Glandulis Intestinorum.*

*Ejusdem Certamen Epistolare de Glandulis Intestinorum cum Joh. de Muralto.*

*Excerpta ex Joh. Nicol. Pechlini de Exercitatione & purgantium Medicamentorum Operationibus.*

*Excerpta ex Johan. Jac. Wepfero de Glandulis Ventriculi.*

*Glystificationis Historia ex Variis.*

*Thomas Whurtonus de Mesenterio & Tractatu de Glandulis.*

*Regneri de Graaf Tractatus Anatomico-Medicus, de Succo pancreatici Natura & Ufu.*

*Johan. Conradi Brunneri Experimenta Nova circa Pancreas.*

*Francisci Glissonii Anatomia Hepatis.*

*Marcelli Malpighii Exercitatio de Hepate.*

*Marcelli Malpighii Exercitatio de Liene.*

*Glandularum Renalium, seu Renum Succenturiatorum, Historia ex Variis.*

*Laurentii Bellini Exercitatio Anatomica de Structura & Ufu Renum.*

*Marcelli Malpighii Exercitatio de Renibus.*

*Regneri de Graaf de utriusque Sexus Organis Generationi inservientibus Tractatus duo.*

*Nichai Stenonis Observationes Anatomicae spectantes Ova viviparorum.*

*Johannis Swammerdam Miraculum Naturæ, sive Uteri Mulieris Fabrica.*

*Regneri de Graaf Partium genitalium Defensio.*

*Cassari Bartholini Thomæ Filii Hafniæ Professoris Anatomies de Ovariis Mulierum, & Generationis Historia, Epistolæ duæ.*

*Marcelli Malpighii de Utero, & Viviparorum Ovis, Dissertatio.*

*Gualtheri Needham Disquisitio Anatomica, de formato Fœtu.*

*Marcelli Malpighii Dissertatio Epistolica de Formatione Pulli in Ovo.*

*Epistolæ quædam, circa hanc de ovo Dissertationem, aliqua ex Occasione, sub nata Argumenta utro citroque scripta.*

*Marcelli Malpighii Appendix, repetitas auctasque de Ovo incubato Observationes continens.*

*Gulielmi Harvei Exercitationes de Generatione Animalium.*

*Theodori Aldes, seu potius Matthæi Sladi Amstelædamensis, Dissertatio Epistolica contra Gulielmum Harveum, tribus Observationibus Anatomicis in Vitulis & Vaccino Utero factis, auctior reddita.*

*Theodori Aldes Observationes in Ovis institutæ, An. 1668. in Variis Incubationis Diebus.*

*Frederici Ruysschii observatiuncula de Ovo in Utero humano reperto.*

*Theodori Aldes Sciagraphia Nutritionis Pulli in Ovo Fœtus vaccini in Utero, ut et Fœtus humani in Utero suo, & de Urina.*

*Caroli Drelingcurtii de Conceptu Conceptus.*

*Carolus Drelingcurtius de Semine Virili, item de Semine Muliebri, Ovis, Utero, Tubis Uteri, cum Corollaris de Fœtu humano.*

In the second Tome are contained the following Treatises:

*Cassari Bartholini Thomæ Filii Diaphragmatis Structura Nova.*

*De Mammis, & Lactis Secretione.*

*Gulielmi Harvei Exercitatio Anatomica de Motu Cordis & Sanguinis.*

*Exercitationes Anatomicae duæ de Circulatione Sanguinis ad J. Riolanum, J. Filium.*

*Richardi Lower Tractatus de Corde, item de Motu & Colore Sanguinis, & Chyli in eum Transitu.*

*Nichai Stenonis Observationes circa Motum Cordis, ejusque Auricularum, & Penæ Cavæ, excerptæ a variorum Animalium Sectionibus, hinc inde factis.*

*Marcelli Malpighii de Polypo Cordis Dissertatio.*

*Marcelli Malpighii de Pulmonibus Epistolæ duæ.*

*Thomæ Willis de Respirationis Organis & Ufu Dissertatio.*

*Johannis Swammerdami Tractatus Physico-Anatomico-Medicus de Respiratione, Ufuque Pulmonum.*

*Malactiæ Thruston de Respirationis Ufu primario Diatriba.*

*Georgii Entii Antidiatriba, sive Animadversiones in Malactiæ Thruston Diatribam de Respirationis Ufu primario, cum Responsionibus & Instantiis.*

*Johannis Mayew Tractatus de Respiratione.*

*Ejusdem Tractatus de Respiratione Fœtus in Utero & Ovo.*

*Thomæ Willis Cerebri Anatomie.*



# A N A

*Marcelli Malpighii Exercitatio Epistolica de Cerebro.*  
*Caroli Fracassati Dissertatio Epistolica responsoria de Cerebro.*  
*Marcelli Malpighii de Cerebri Cortice Dissertatio.*  
*Nicolai Stenonis de Cerebri Anatome Dissertatio.*  
*Nicolai Stenonis de Vitulo Hydrocephalo Epistola.*  
*Joannis Jac. Wepferi de Puella sine Cerebro Nata Historia.*  
*Theodori Reckringii de Ovis aliquot & Pucro Cerebro carentibus, &c.*  
*Gulielmi Briggs Ophthalmographia.*  
*Joannis Baptistæ Verle Anatomia Artificialis Oculi.*  
*Güntheri Christi. Schelhammeri de Auditu Tractatus.*  
*Josephi du Verney de Auditus Organo Tractatus.*  
*Marcelli Malpighii Exercitatio Epistolica de Lingua.*  
*Laurentii Bellini Gustus Organum novissime deprehensum.*  
*Theodori Reckringii Anthropogenia Ichnographia.*  
*Theodori Reckringii Osteogenia Factum.*  
*Nicolai Stenonis de Musculis Observationum Specimen.*  
*Nicolai Stenonis Elementorum Myologiae Specimen.*  
*Thomæ Willis Exercitatio Medico-physica de Motu Musculari.*  
*Joannis Mayow Tractatus de Motu Musculari, & Spiritibus animalibus; obiter de Motu Cerebri, necnon de Usu Lienis & Pancreatis.*  
*Caroli Sponii Myologia heroica Carmine expressa.*  
*Caroli Sponii Muscularum Microcosmi Origo & Insectio.*  
*Thomæ Willis Nervorum Descriptio & Usus.*  
*Thomæ Willis Arteriarum Descriptio Anatomica.*  
*Caspari Aselli Ticinensis Historia Vasorum Chyli.*  
*J. Pecqueti Diepensii Experimenta Nova Anatomica circa Lacrarum Progressum.*  
*Thomæ Bartholini Archiatri Regii, & Hafniensis Academiae Professoris Honorarii, de Lacteis thoracicis Historia Anatomica.*  
*Thomæ Bartholini de Lacteis thoracicis Dubia Anatomica.*  
*Caroli Drelingcurtii Experimenta Anatomica ex Vivorum Sectionibus petita.*  
*Thomæ Bartholini Vasorum Lymphaticorum Historia Nova.*  
*Olai Rudolphi Succii Nova Exercitatio Anatomica, exhibens Ductus hepaticos, aquosos, & Vasa Glandularum serosa.*  
*Frederici Ruyschii Dilectatio Vascularum in Vasis Lymphaticis & Lacteis.*  
*Güntheri Christi. Schelhammeri de Lymphæ Ortu, & Lymphaticorum Causis, Dissertatio Epistolica.*  
*Thomæ Whartonii Adenographia.*  
*Nicolai Stenonis Observationes Anatomicae de Glandulis Oris, & Novis inde procedentibus Salivæ Vasis.*  
*Nicolai Stenonis de Glandulis Oculorum, novisque earundem Vasis.*  
*Ejusdem Appendix de Narium Vasis.*  
*Nicolai Stenonis de Glandulis Tractatus.*  
*Gulielmi Cole de Secretione Animali Cogitata.*  
*Johannis Alphonsi Borelli de Motu Animalium Opus posthumum.*  
*Abrahami Lysleri Cultus Anatomicus.*  
*Simonis Pauli Dani Modus dealbandi Offa pro sceletopæia.*  
*Ejusdem Observationes in Coelura Ossium, præsertim Sterni.*  
*Caspari Bartholini Thomæ Filii Administrationum Anatomicarum Specimen.*  
*Josephi Zambecarii Experimenta circa Diversa e Variis Animalibus viventibus exsilia Viscera.*

## MARCHETTIS (DOMINICUS DE)

Succeeded *Veslingius* as Professor of Anatomy at *Padua*. At the same Place lived *Petrus de Marchettis*, who applied himself to Surgery.

The Works of both are in good Esteem. That of *Dominicus de Marchettis* is *Anatomia, cui Responsiones ad Rolandum Anatomicum Parisiensem in ipsius Animadversionibus contra Veslingium additæ sunt*, *Patavii*, 1652. *ibid.* 1654. *Hardervici*, 1656. together with *Petri de Marchettis Nova Observatio, & Curatio Chirurgica*.

## MAYOW, (JOHN)

A Physician of *Oxford*, Fellow of *All Souls College*, and Doctor of Laws, wrote the following Anatomical Treatises:

*Tractatus Quinque Medico-physici*, printed *Oxonii*, 1669. *ibid.* 1674. *Hagæ Comitum*, 1681. These Treatises, except the first and the last, are in the *Biblioth. Anatom. of Alantetus* and *Le Clerc*, printed *Genev.* 1685. *Tractatus duo sorsum editi*, quorum prior agit de *Respiratione*, alter de *Rachitide*, *Oxonii*, 1669. *Lugd. Batav.* 1671.

## MEIBOMIUS (HENRICUS)

Discovered some Vessels of the Eye-lids, which had not been taken Notice of before. These he gives an Account of in an Epistle, intitled, *De Vasis Palpebrarum Novis Epistola Vir. Clar. Jeelem Langelot, Helmstadii*, 1666. *De Medicorum Historia Scribenda Epistola ad P. Cl. Georg. Hieronym. Velfchium, Helmstad.* 1669.

## MOLINETTUS, (ANTONIUS)

A Physician and Anatomist of *Padua*, was Author of the following Treatises:

# A N A

*Dissertationes Anatomicae & Pathologicae de Sensibus, & eorum Organis*, *Patavii*, 1669. *Dissertationes Anatomico-pathologicae, &c. Venetiis*, 1675.

## MONRO, (ALEXANDER)

A celebrated Professor of Anatomy, at *Edinburgh*, Author of an Osteology, which is in much Esteem. I don't know, that he has published any thing else, except some Pieces in the *Medical Essays*. The second Edition of this Osteology was printed *Edinburgh*, 1732.

## MORGAGNI (JOHANNES BAPTISTA)

Was born at *Forli* in the Ecclesiastical State, and was Professor of Anatomy at *Bologna*. He made considerable Discoveries in Anatomy, relating to the Muscles of the Os Hyoides, Uvula, and Pharynx; to the Tongue, and Epiglottis; to the Arytenoide Glands; to the Sebaceous Glands; to the Bladder, Uterus, Vagina, and Breasts.

His Works are,

*Adversaria Anatomica*, which were collected and printed at *Leyden*, 1723. 4to.

*Epistolæ Anatomicae duæ*, *Lugdun. Bat.* 1728. 4to.

## MURALTO (JOHANNES DE)

Was of *Zurich*, where he was Professor of Physic. He wrote various Essays on the Anatomy of Fish, Insects, and other medicinal Subjects, which are extant in the *German Ephemerides*.

Besides these, he publish'd a Book, intitled, *Vade Mecum Anatomicum, sive Clavis Medicinæ*, printed *Tiguri* 1677.

## NEEDHAM, (WALTER)

An English Physician of the last Century, gave a good Account of the Membranes which involve the Fœtus, in his Book *De Formatu Fœtus*, *Londini*, 1667. 8vo. *Amstelodami*, 1668. 12mo.

## NICHOLLS (Dr. FRANCIS).

I don't know, that this Gentleman has published any thing in Anatomy, except his *Compendium Anatomico-Oeconomicum*, and some Essays in the *Philosophical Transactions*. But his uncommon Application to this Science, and his singular Sagacity in Anatomical Researches, make it hoped, that he will some time oblige the World with an Account of his Discoveries. The Editors of the *Edinburgh Medical Essays* somewhere observe, that *Albinus* had injected the Vessels of the Coat of the Crystalline Humour of the Eye, and seem to think it a new Discovery: On this Occasion I cannot forbear taking Notice, that I have seen *Dr. Nicholls* inject these Vessels sixteen Years ago.

## NUCK, (ANTONY)

A Dutch Physician, first practised his Profession at the *Hague*, and afterwards was Professor of Anatomy at *Leyden*. He was a most experienced and indefatigable Anatomist, having dissected with his own Hands, in the Space of eight Years, upwards of sixty human Subjects.

The way how the watry Humour of the Eye, when by Accident lost, may be, and is constantly supplied, was first found out and described by *Nuck*, who discovered a particular Canal arising from the internal Carotid Artery, which, creeping along the Sclerotic Coat of the Eye, perforates the Cornea near the Pupil, and then branching itself curiously about the Iris, enters into, and supplies the aqueous Humour.

He also discovered some Salival Glands, not mentioned by *Wharton*, *Steno*, *Bartholine*, or *Rivinus*.

He says, that the Breasts are Heaps of Glands, supplied with Blood by innumerable Ramifications of the Axillary and Thoracic Arteries; some of which, passing through the Breast-bone, unite with the Vessels of the opposite Side. These Arteries, which are inconceivably small, part with the Milk in those small Glands into small Pipes, four or five of which, meeting together, make one small Trunk. Of these small Trunks, the large Pipes, which terminate in the Nipple, are made up; tho' before they arrive thither, they streighten into so small a Compass, that a stiff Hair will just pass through. The Nipple, which is a fibrous Body, has seven or eight, or more Holes, through which every Pipe emits its Milk upon Suction; and lest, any one of them being stopp'd, the Milk should stagnate, they all have cross Passages into each other, at the Bottom of the Nipple, where it joins to the Breast.

He says, that the Lympheducts arise immediately from the Arteries, and that many of them pass through the Conglobate Glands, that are dispersed in the Abdomen and Thorax, in their Way to the Receptacle of the Chyle, or those Veins which receive them.

His Works, which I have seen, are, *Adenographia, Sialographia, & Operationes & Experimenta Chirurgica*, in three small Vols. printed *Lugd.* 1722.

## PALFYN,



# A N A

PALFYN, (JOHN)

A Surgeon of Ghent, wrote a Book intituled, *Anatomic Chirurgicale, ou Description exacte des Parties du Corps humain*, printed à Paris, 1734. 8vo. 2 Vols. and another, intituled, *Description Anatomique des Parties de la Femme, qui servent à la Generation, avec une Traité des Monstres*, à Leide, 1780. His *Nouvelle Osteologie*, &c. Paris, 1731. 12mo.

PASCHIONI, (ANTONIUS)

An Italian Physician, wrote a Treatise about the Dura Mater, which he dedicates to *Lancisi*; in this he describes some Conglobate Glands about the longitudinal Sinus, which had been overlooked by *Nuck* and *Malpighi*.

PASCOLUS, (ALEXANDER)

A Physician of *Perusa*, in *Italy*, wrote a Book, intituled, *Corporis humani brevis Historia*, which is printed in *Italian* at *Venice*, 1727. 8vo. 3 Vols. and at *Rome*, I think, in *Latin*, 1728. 8vo. 3 Vols.

PAULI (SIMON)

Was born at *Rosstock* in 1603. In 1632. he was made Professor of Physic at the Place of his Birth. In 1639. he was constituted Professor of Anatomy, Surgery, and Botany, at *Copenhagen*: And in 1656. Physician to the King of *Denmark*.

He is Author of a great many Treatises; but his Anatomical Works are, *Methodus dealbandi Offa pro Sceletopæia*.

*Observationes in Coëtura Ossium, præsertim Sterni*. Both which are in the *Bibliotheca Anatomica*.

PEQUET, (JOHANNES)

Of *Diepe*, an Author of the last Century, rendered his Name famous by his Discovery of the Receptacle of the Chyle; which, however, it is said, *Bartholomæus Eustachius* was acquainted with before him. But the World is obliged to *Pequet* for shewing, beyond all Contradiction, that the Laëteal Vessels convey the Chyle to this Receptacle; and for proving, that it is thence carried, by particular Vessels, through the Thorax, almost as high as the Left Shoulder, and there thrown into the Left Subclavian Vein, and so directly carried to the Heart. His Works are, *Experimenta nova Anatomica*, printed *Harderwici*, 1651. *Parisiis*, 1654. To this Edition there is added, *Dissertatio de Thoracis Laëteis*, &c. &c. *Amstelodami*, 1661. They are also extant with the *Messis Aurca Siboldi Hemsterhuis*, *Lugd. Batav.* *Heildebergæ*, 1659. also in the *Bibliotheca Anatom.* of *Le Clerc* and *Mangetus*, *Genev.* 1685. and with most Editions of the *Anatomia Reformata Thomæ Bartholini*.

PETIT (JEAN LOUIS)

Is Author of a Book, intituled, *Traité des Maladies des Os*, of which there have been many Editions; the last was printed *Paris*, 1741.

PEYER, (JOHANNES CONRADUS)

A Native of *Schaffhausen*, in *Switzerland*. He is famous for having first given an accurate Account of the Intestinal Glands, which, in a State of Health, separate a Fluid for the Lubrication of the Intestines, and which in Diarrhœas, or upon taking a Purge, supply the extraordinary Discharge, which happens upon these Occasions. His Works are, *Exercitatio Anatomico-medica de Glandulis Intestinalium*, *Schaffhusæ*, 1677. *Amstelodam.* 1682. This is in the *Biblioth. Anatom.* of *Mangetus* *Le Clerc*. *Pæonis & Pythagoræ Exercitationes Anatomicæ*, *Basil.* 1682. *Methodus Historiarum Anatomico-medicarum*, &c. 1679. *Parerga Anatomica & Medica*, *Amstelodami*, 1682. *Experimenta Nova circa Pancreas*, extant with the *Biblioth. Anatomica* of *Le Clerc* and *Mangetus*.

PLEMPIUS, (VOPISCUS FORTUNATUS)

Of *Amsterdam*, was famous for giving a good Description of the Eye, in a Treatise, intituled, *Ophthalmographia, sive Tractatus de Oculi Fabrica, Actione, Usu*, &c. *Amstelodam.* 1632. *Lovanii*, 1648.

RIDLEY (HENRY)

Was Fellow of the College of Physicians; and, at the latter End of the last Century, published a Treatise on the Brain, in which he makes some Observations, which had escaped the Notice of *Willis* and *Vieussens*. His Book is intituled, *The Anatomy of the Brain, containing its Mechanism and Physiology, together with some new Discoveries, and Corrections of modern Authors, upon that Subject; to which is annexed, a particular Account of Animal Functions, and Muscular Motion, illustrated with Sculptures*, *London*, printed, 1695.

ROLINCKINS (GUERNERUS)

Was born at *Hamburg*, in 1590. and was Professor of Anatomy at *Jena*, in 1629. He wrote the following Books upon Anatomical Subjects: *Dissertationes Anatomicae*, printed *Noribergæ*, 1656. *Dissertatio de Hepate*, *Jenæ*, 1653. *Dissertatio de Corde*, *ibid.* 1654.

# A N A

RUDBECKIUS, (OLAUS)

Of *Upsal*, in *Sweden*, had a great Dispute with *Thomas Bartholine*, about the Discovery of the Lymphatic Ducts, to which both laid Claim. It is certain, that *Dr. Jolliffe*, in *England*, remarked these Vessels much about the Time, or something before, these Antagonists observed them; and I see no Reason why all three may not equally pretend to the Glory of the Discovery, since, 'tis probable, neither of them took the Hint from either of the other. His Works are, *Exercitatio nova Anatomica*, &c. printed *Arosiæ*, 1653. *Lugd. Batav.* 1654. It is also printed with the *Messis Aurca* of *Siboldus Hemsterhuis*, *Heildebergæ*, 1659. and with the *Biblioth. Anatomica* of *Le Clerc* and *Mangetus*, *Genevæ*, 1685. *Insidiæ Struëlæ Olai Rudbeckii Sueci*, &c. *Lugd. Batav.* 1654. *Pro Ductibus hepaticis contra Bartholinum*, *Lugd. Batav.* 1654. *Epistola ad Thomam Bartholinum de Vasis Serosis*, *Upsaliæ*, 1657.

RUYSCH (FREDERIC)

Was born at the *Hague*, on the 23d of *March* 1638. He was the Son of *Henry Ruysch*, Secretary to the States General, and to *Anne Van Berghem*. The Family from which he was descended, was originally of *Amsterdam*, where from the Year 1365. his Ancestors had, without Interruption, bore the most honourable Offices of the State, till the Year 1576. when a War happening betwixt *Spain* and the States, occasioned a Revolution in the Fortunes of the Family.

But *Mr. Ruysch* is far less considerable on account of his Extraction, than his distinguished Merit as a Member of Society, a Physician, and an Anatomist.

This Gentleman, from his Infancy, devoted himself to Physic, and began his first Researches with the *Materia Medica*. The Virtues of Plants, the Structures of Animals, the Qualities of Mineral Bodies, Chymical Operations, and Anatomical Dissections, were the Objects that first struck his Fancy, and called for his improving Hand. He was none of those superficial Inquirers, who either thro' Prejudice, or Indolence, rest satisfied on this Side of Truth; for he had stripp'd his Mind of all those unreasonable Attachments, which are inconsistent with the Temper of a Philosopher; and acquir'd such an indefatigable Turn, that his hardest Labours in Pursuit of Truth became his highest Pleasures, and his only Recreations. And even when he married in 1661. it was in a great measure with a View to render his Circumstances easy, that he might pursue Truth to the greater Advantage.

About this Time, the famous *Bilsius*, being appointed Professor of Anatomy at *Louvain*, made his Appearance at *Leyden*. This Physician bore it with a high Hand; undervalued those who were justly esteemed the Ornaments of their Profession, and, with all the haughty and supercilious Airs of a *Spaniard*, extoll'd his own Discoveries above theirs, especially with regard to the Motion of the Bile, the Lymph, the Chyle, and Fat. But as Insolence seldom fails to be chastised by real Merit, so *Delebee*, *Sylvius*, and *Van Horne*, then Professors at *Leyden*, had a mind to check the exorbitant Vanity of this Stranger. For this Purpose they courted the Assistance of young *Ruysch*, who had been more conversant in minute and delicate Dissections, than they themselves. *Mr. Ruysch* came from the *Hague*, where he lived, to *Leyden*, by Night, presented them with Materials proper for encountering and confounding *Bilsius*, and returned home directly, to make new Preparations for the same Purpose.

After having thus fought in Secret against *Bilsius*, the two Combatants came at last to an open Engagement; for *Sylvius* and *Van Horne*, to whom he had lent so seasonable an Aid, had no mind to assume the Results of his Industry as their own Discoveries. *Mr. Ruysch*, in the Course of the Debate, had asserted, that the Resistance he felt upon blowing into the Lymphatic Vessels, gave him Reason to believe, that these Vessels were furnished with Valves, which, he confess'd, he had not seen, but said, he was not singular in his Judgment as to that Particular. *Bilsius* not only denied the Fact with uncommon Assurance, but even testified a strong Contempt for those who pronounced the thing possible. *Ruysch*, who was bless'd at once with a clear Head, and an accurate Hand, actually found those Valves, to the Number of above two thousand, and gave incontestable Proofs of the Reality of that, which he had before advanced as a Conjecture only. This Accident gave unspeakable Satisfaction to Men of Sense, who always rejoice to see Merit triumph over Arrogance and Ignorance. *Bilsius*, who regarded Reputation more than Truth, promised to yield the Point as soon as he himself should see these Valves: But when the Evidence of his own Senses reduced him to a Necessity of acknowledging their Existence, he added Arrogance to his Ignorance, and confidently asserted, That he knew these Valves, tho', for Reasons of his own, he did not chuse to discover his Knowledge in that Particular. *Ruysch*, in a small Volume, published in 1665. which, by the way, was the first Work of his that saw the Light, has given us a particular Account of this Contest; in which *Bilsius*, insensible of the Advan-



Advantages of Modesty, renders himself famous, or rather infamous, for the opposite Vice.

Mr. *Ruyfch* was in the Year 1664, created Doctor of Physic in the University of *Leyden*, and had very soon after a very fine, but at the same time, a very deplorable Opportunity put into his Hand, of convincing the World with how great Justice that Dignity was conferr'd upon him; for the Plague began to rage all over *Holland*, and Mr. *Ruyfch* had the Care of those that were infected at the *Hague*, committed to him. This Office, whatever Share of Glory it might procure him, was nevertheless far from being desirable in itself; But it is no uncommon thing for Merit and Learning to subject their Possessors to Inconveniencies, from which the Ignorant and Illiterate are entirely free.

But his principal Business, and the Employment which engaged most of his Time, consisted in carrying Anatomy to that noble Height of Perfection, at which it had never before arrived. Anatomists had long contented themselves with such Instruments as were judged necessary for separating those solid Parts, the particular Structures, or mutual Relations, of which they wanted to discover. *Regnier de Graaf*, an entire Friend, and an intimate Acquaintance of Mr. *Ruyfch*'s, was the first, who, in order to discover the Motion of the Blood in the Vessels, and the several Roads it took during Life, invented a new Species of Syringe, by means of which, he filled the Vessels with some high-coloured Substance, which sufficiently discovered the Road taken by itself, and consequently that taken by the Blood in a living Animal. This Invention was at first approved of; but the Practice was soon after discountenanced, because the Matter gradually made its Escape, and left the Preparation good for nothing.

*John Swammerdam* endeavour'd to supply this Defect in *de Graaf*'s Invention, and happily concluded, that there was a Necessity for using some warm Substance, which becoming gradually cool, in Proportion as it flow'd into the Vessels, might at last, when arriv'd at their Extremities, lose the Nature of a Fluid, and by that means become capable of being retain'd in the Vessels. This, no doubt, required a very nice and discerning Judgment, both with regard to the particular Quality of the injected Matter, its due Degree of Heat, and the just Momentum, or Proportion of Force, with which it was to be impell'd. By this means *Swammerdam* first render'd the Capillary Arteries and Veins of the Face visible; but he did not long persist either in the Use or Improvement of his new Invention; for an Excess of Piety soon after spoil'd his Anatomical Turn, and made him look upon such Practices as impious. The devout *Swammerdam* was, no doubt, afraid of rivalling the Almighty in the Perfection of his Works; but his Fears in this Particular were ill-founded. But as the most exalted Degrees of Devotion rarely extinguish all the Motions of Vanity in the Heart, so *Swammerdam* was tempted to communicate his Invention to his Friend Mr. *Ruyfch*; who was not only fond of it, but afterwards practis'd it without any Fear of offending God.

Upon his first Trial he found the Experiment to hold, and, in all Probability, produced a more perfect Preparation than *Swammerdam* himself had done: The Vessels were so curiously injected, that the remotest Parts of their Ramifications, which were as slender as the Threads of a Spider's Web, became visible; and, which is still more surprising, sometimes were not so, without the Assistance of a Microscope. What then must the Nature of that Substance be, which is, at once, so fine as to enter the imperceptible Cavities of these Canals, and at the same time is possess'd of such a Quality as to indurate itself there?

Small Ramifications were discover'd, which were neither observable in the Living, nor to be seen in dissecting the Bodies of those that were newly dead.

The entire Carcasses of Children were injected; for the Operation was thought very difficult, if not entirely impossible, in Adults. Nevertheless, in the Year 1666, by the Order of the States General, he undertook to inject the Body of the *English* Admiral *Bercker*, who was killed on the 11th of *June*, in the Engagement betwixt the *Dutch* and *English* Fleets: This Body, tho' very much spoil'd, before *Ruyfch* put his artful Hand to it, was yet sent over to *England* as curiously prepar'd as if it had been the fresh Carcase of an Infant; and the States General bestow'd a Recompence which was at once proportion'd to their Grandeur, and the Artist's Merit.

Every Part of the injected Matter preserved its Consistence, its Softness, its Flexibility, and even gradually acquir'd fresh Degrees of Beauty with Time.

Carcasses, with all their Viscera, were so far from having a nauseous Smell, that they even acquired an agreeable one, and that too in Cases where they smell'd very strong before the Operation.

Every Part was preserved from Corruption by Mr. *Ruyfch*'s Secret. A long Life afforded him the Pleasure of seeing, that his Preparations had, till then, been Proof against the Shocks of Time, and even put it out of his Power to ascertain the Length of their future Duration. All his injected Carcasses glow with

the striking Lustre and Bloom of Youth; they appear like so many living Persons fast asleep; and their pliant Limbs pronounce them ready to walk: In short, the Mummies of Mr. *Ruyfch* were so many Prolongations of Life; whereas those of the antient *Egyptians* were only so many deplorable Continuations of Death.

When Mr. *Ruyfch* began to produce such surprising Preparations, abundance of incredulous People pronounced the Facts impossible; but he gently oppos'd their Obstinacy with these Words, *Come and see*. His Museum was not only always open, but richly stor'd, if I may be allow'd the Expression, with living Monuments of his Art, who were ready to pronounce in his Favour, and give the Lye to his Opposers. A certain Professor of Physic very seriously advis'd him to renounce these Novelties, and tread in the safe and beaten Paths of his Predecessors; but as Mr. *Ruyfch* despis'd the foolish Admonition, the Doctor redoubled his Letters, and at last told him, that his Conduct in that Particular was inconsistent with the Dignity of a Professor; to all which *Ruyfch* replied, in a noble and truly Laconic Strain, *COME AND SEE*.

Mr. *Ruyfch* conceals the Name of the Professor, who was so friendly, or rather so foolish, as to give him this Advice; but he has acted otherwise with regard to Messrs. *Razw* and *Bidloo*, who were both famous for their Skill in Anatomy, and had openly declared themselves against him; especially *Bidloo*, who confidently boasted, that he knew the Secret of preparing and preserving Carcasses better than Mr. *Ruyfch* himself. Upon this Mr. *Ruyfch* asked him, Why, since it was so, he had not discover'd such and such Parts? And why he had mangled his Anatomical Tables, by committing notorious Blunders? which he specifies and points out to him. Thus far the Conduct of Mr. *Ruyfch* was unexceptionable, and hitherto he appears with all the Advantages that a good Cause, and Candour in Dispute, can give him: But soon after he loses the Temper of the Philosopher, and the Gentleman; for, upon *Bidloo*'s calling him a *subtile Butcher*, he falls into personal Reflections, and says, that he rather chose to be *Lanius subtilis, quam Leno fumosus*, "a *subtile Butcher*, than an infamous Pimp." The Play of Words, and the imagin'd Antithesis, betwixt *Lanius* and *Leno*, may possibly have induced him to transgress so far against the Laws of Decorum, and true Politeness: But what had he to do with the Morals of his Antagonist, when the Extent of his Knowledge was the Subject in Dispute? True it is, that *Bidloo*'s Conduct was so provoking as not to admit of an Apology, when he call'd him *miserimus Anatomicorum*, "the most miserable of Anatomists." But the Extravagance of one Man ought never to unhinge the Mind, or authorize the Rashness of another.

But tho' Falshood may sometimes have resolute Champions, yet Truth never fails to come off victorious in the End. The Beauties of Mr. *Ruyfch*'s Art were seen, and the Advantages of it felt. The Subjects necessary for Dissection, which the reigning Superstition of the Times render'd very few, soon spoil'd in the Hands of other Anatomists; but Mr. *Ruyfch* had the incomparable Secret of rendering them of eternal Use. Dissections were now no more accompanied with those Ideas of Horror and Aversion, which before had proved fatal to Anatomy: Hitherto Anatomical Demonstrations could only be made in the Winter Season, but now the most scorching Heats were equally proper for that Purpose, provided the Days were equally clear.

Now, considering the Advantages of this Secret, and the strong Curiosity that naturally reign'd in Mr. *Ruyfch*'s Breast, we need not be surpris'd, if he discover'd things that had escap'd the Notice of all that went before him, such as the Bronchial Artery, which supplies the Lungs with Nourishment, before unknown to the most minute and accurate Anatomists; the Periosteum of the *Ossicula Auditus*, which were formerly look'd upon as bare; the Ligaments belonging to the Articulations of these *Ossicula*. He likewise found, that the Cortical Substance of the Brain was not glandular, as was commonly thought, but consist'd of Vessels infinitely ramified; and that several other Parts, which were falsely look'd upon as glandular Bodies, were no more than so many Congeries of simple Vessels, which only differ'd in their respective Lengths, their Diameters, the Curves they describ'd in their Courses, and the Distance of their Extremities from the Heart, Circumstances on which the various Secretions or Filtrations depend. *Frederic Schreiber*, who writes his Life, when talking of the Extent and Importance of his Discoveries, seems animated with a kind of Enthusiasm, and expostulates the Matter in this warm Strain: *Who before him observ'd the Vessels running thro' the Tunica Aranea, the Patella, and the Acetabulum Coxæ? Who discovered the Vessels diffused in that Membrane which surrounds the Marrow of the Vertebrae? Or who found out the Vessels in the Medullium of the Bones, and in those Tendons and Ligaments which are destitute of Blood?*

*Ruyfch*, besides his Practice of Physic, and Professorship of Anatomy, was, by the Burgo-masters of *Amsterdam*, appointed Inspector of all those who were either kill'd or wounded in personal Quarrels. He was likewise, for the general Good of the State, created *Master of the Midwives*, who, generally speaking,



ing, were very ignorant of their Business; they were too hasty; for Instance, in forcibly extracting the *Placenta*, when it came not away; and were often rash enough to tear it, which frequently caused unavoidable Death: But Mr. *Ruyfch* taught them, tho' with some Difficulty, to wait with Patience for its coming away, or at least only gently to assist its Expulsion; because an orbicular Muscle, which he had discover'd in the Bottom of the Uterus, naturally thrust it outwards, and was even sufficient to expel it intirely.

At last *Ruyfch* was created Professor of Botany, in the Exercise of which Office he gave the same Scope to his natural Genius, which he had formerly done in Anatomy. The extensive Commerce of the *Hollanders* supplied him with many exotic Plants, which he dissected and preserved with incomparable Art: He dexterously separated their Vessels from their Parenchyma, and by that means plainly shew'd wherein their Life consisted. Thus Animals and Plants were equally embalmed, and equally sure of Duration, by the skilful Touches of Mr. *Ruyfch's* Hand.

His Museum, or Repository of Curiosities, contain'd such a rich and magnificent Variety, that one would have rather taken it for the Collection of a King than the Property of a private Man: But not satisfied with the Store and Variety it afforded, he would beautify the Scene, and join an additional Lustre to the curious Prospect. He mingled Groves of Plants, and Designs of Shell-work, with Skeletons, and dismember'd Limbs; and, that nothing might be wanting, he animated, if I may so speak, the Whole with apposite Inscriptions, taken from the best *Latin* Poets. This Museum was the Admiration of Foreigners: Generals of Armies, Embassadors, Electors, and even Princes and Kings, were fond to visit it. When *Peter* the First, of *Muscovy*, came into *Holland*, in the Year 1695. he was so struck with the View of Mr. *Ruyfch's* Collection, that he tenderly kiss'd a little Infant, which sparkled with all the Graces of real Life, and seem'd to smile upon him. On his second coming over, in 1714. he purchased the Collection, and sent it to *Petersburg*; but the Industry and long Experience of Mr. *Ruyfch* soon supplied him with another.

In the Year 1727. he was chosen Honorary Associate of the University of *Petersburg*. He was also a Member of the *Leopoldine* Academy in *Germany*, and of the Royal Society in *England*.

He died of a Fever in the 92d Year of his Age in 1731. and had this peculiar Advantage over most other learned Men, that he lived to see all that Opposition, which Malice and Envy made to his Merit, hush'd and laid to sleep.

Mr. *Ruyfch* has publish'd a great many Pieces at different Times, which were at last reduced into a very confused and unaccountable Order, and printed, as the Title-page of the first Volume imports, *Amstelædami, apud Jassonio-Waefbergios, 1737.*

There is a Peculiarity in one Work of Mr. *Ruyfch's*, which deserves to be taken Notice of, which is, that some Passages of his *Adversaria*, which he publish'd in *Latin* and *Dutch*, are left untranslated into the *Dutch*. What influenced this Author in this Case, every one must judge for himself, from the Nature of the Passages untranslated.

We hope the vast Variety both of entertaining and instructing Incidents that occur in the Life of Mr. *Ruyfch*, will sufficiently apologize for its Length, and account for our spending more Time upon him than some of the rest.

#### SANTORINI, (J. DOMINICUS)

As I remember, a *Venetian*, publish'd many curious Anatomical Discoveries in his *Observationes Anatomicae*, of which there have been one or more *Italian* Editions; but the last was printed at *Leyden*, 1739-40.

His *Opuscula Medica* were printed at *Rotterdam*, 1719.

#### SCHELHAMMERUS, (GUNTHERUS CHRISTOPHERUS)

A Physician, who, in the latter Part of the last Century, was Professor of Physic at *Jena* for four Years; and afterwards removed into *Denmark*, where he spent the Remainder of his Days. He wrote a Book intituled, *In Physiologiam Introductio*, printed *Helmæstadii*, 1681. 4to. and another intituled, *De Auditu Liber Unus*, *Lugd. Bat.* 1684. 8vo.

This last, and his *Epistolica Dissertatio de Lymphæ Ortu, & Lymphaticorum Vasorum Causis*, are extant in the *Bibliotheca Anatomica*. He also publish'd an Edition of *Conringius's* Introduction to Physic, with Notes.

He makes various Observations relative to the Tongue, Larynx, Salivary Glands, Diaphragm, Mesentery, Colon, Intestinum Cæcum, Receptaculum Chyli, Kidneys, Fingers, Nails, and to the Lymph, and Lymphatic Ducts, all which are worthy of Consideration.

Some detach'd Pieces of this Author are extant in the *German Ephemerides*, as the *Anatomy of a Mole*, and a Treatise *De Calculo Cerebri*.

VOL. I.

#### SCHILLINGIUS (HENRICUS SIGISMUNDUS)

Was Author of the following Anatomical Works:

*Discursus Physiologico-Anatomicus de Microcosmi Miseria, & Perfectionis Excellentia*, *Wittebergæ*, 1658. in 4to.  
*Tractatus Osteologicus, sive Osteologia Microcosmica*, *Dresidæ*, 1669. in 4to.

#### SCHNEIDERUS, (CONRADUS VICTOR)

A Professor of Physic at *Wirttemberg*, in the Middle of the last Century, wrote a great many Anatomical Pieces; but his principal Subjects are the *Membrana Pituitaria*, and the Bones of the Head, upon which he has some excellent Remarks.

His Works are,

*Dissertationes Anatomicae de Partibus, quas vocant, Principalioribus, Capite, Corde, Hepate, cum Observationibus ad Anatomiam, necnon ad Artem Medendi pertinentibus*, *Wittebergæ*, apud *Johan. Rotinerum*, 1643. in 8vo.

*Liber de Offe cribriformi, & Sensu ac Organo Odoratus, & Morbis ad utrumque spectantibus, de Coryza, Haemorrhagia Narium, Polypo, Scurtatione, Amissione Odoratus*, *Wittebergæ*, apud *Tobiam Mevium & Elerdum Schumacherum*, 1655. in 12mo.

*Disputationes Osteologicae aliquot*, *Wittebergæ*, apud *Michael. Wendtium*, 1649. in 8vo.

*Disputatio Medica de Offibus Sincipitis*, *Wittebergæ*, apud *Johan. Rohnerum*, 1653. in 8vo.

*De Offe Occipitis, ejusdemque Vitiis ac Fulneribus*. *Ibidem*, apud *Johan. Hacke*, anno & formâ eisd.

*Disputatio An. tica, de Offibus Temporum*. *Ibid.* apud *Johan. Rohnerum*, 1653. in 8vo.

*Oratio de Aequitate ac Justitiâ Naturæ*, *ibid.* 1646. in 4to.

*Oratio de Bellis Naturæ*, *ibid.* in Fol.

*Dissertatio Anatomico-Chirurgica, de Natura Offis Frontis, & ejus Fulneribus ac Vitiis*, *ibid.* 1650. in 8vo.

*Liber primus de Catarrhis. Quo agitur de speciebus Catarrhorum, & de Offe cuneiformi, per quod Catarrhi decurrere solentur*, *Wittebergæ*, apud *Hæc. Tobia Mevii, & Elerdi Schumacheri*, 1660. in 4to.

*Liber de Catarrhis secundus, quo Galenici Catarrhorum meatus perspicue falsi revincuntur*, *ibid.* apud *Eosdem*, anno & formâ eisdem.

*Liber de Catarrhis tertius, quo Novi Catarrhorum meatus demonstrantur*, *ibid.* apud *Eosdem*, 1661. in 4to.

*Liber de Catarrhis quartus, quo generalis Catarrhorum Curatio ad novitia Dogmata & Inventa paratur*, *ibid.* apud *Eundem*, anno & formâ eisdem.

*Liber Quintus & Ultimus de Catarrhorum Dieta, & de speciebus Catarrhorum, &c.* *Wittebergæ*, 1662. in 4to.

*Liber de Catarrhis specialissimus, &c.* *Wittebergæ*, 1674. in 4to.

*Liber de Morbis Capitis seu Cephalicis illis, ut vocant, soporosis, &c.* *Wittebergæ*, 1669. in 4to.

*Liber de Nova Gravissimorum trium Morborum Curatione, &c.* *Francfurti*, 1672. in 4to.

*Liber de Spasmodum Natura & Subjeçto, &c.* *Wittebergæ*, 1678. in 4to.

#### SEVERINUS (MARCUS AURELIUS)

Was Pupil to *Julius Jassolinus*, in the Beginning of the last Century, and afterwards Professor of Anatomy and Surgery at *Naples*. He is more famous for his Chirurgicall than his Anatomical Works, and perhaps excell'd in Surgery by the Help of Anatomy, without which it would be very difficult to make any considerable Figure in that Profession. His Anatomical Works are,

*Zootomia Democritea, &c.* *Noribergæ*, 1646. in 4to.

*Historia Anatomica, Observatioq; Medica, viscerati Corporis*, *Neapoli*, 1629. in 4to.

*De Aqua Pericardii Cordis Adipe, Poris Cholidochis, Hancviæ*, 1654. in 4to.

His *Questiones Anatomicae quatuor*. 1. *De Aqua Pericardii*. 2. *De Cordis Adipe*. 3. *De Poris Cholidochis*. 4. *Osteologia, pro Galeno, adversus Argutiores. Epidochæ in totidem alias Julii Jassolini*, are extant in an Anatomical Piece of *Volckamer's*, *Hanoviae*, 1654. in 4to. *Francfurti*, 1668. in 12mo.

#### SEVERUS, (NICOLAUS)

About the Middle of the last Century, wrote the following Anatomical Pieces:

*Responsio ad Vindicias Hepatis Redivivi contra Densungium*, *Lugd. Batavorum*, 1662. in 12mo.

*Observationes Anatomicae de Glandulis Oculorum, novisque eorum Vasis, Hæsnæ*, 1664. in 4to.

*Observationes Anatomicae de Glandulis Oris*, *Lugd. Batavorum*, 1662. in 4to. and 12mo.

#### STENO, (NICOLAUS)

A Dane, flourish'd about the Middle of the last Century. He enrich'd Anatomy with many valuable Discoveries: Amongst



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other Things, he observed the Ducts which convey Moisture to the Eye for the Convenience of its Motion in the Orbit, and in 1662 describ'd a salivary Duct not taken Notice of before, which comes from the Glands which lie near the Ears. He also observed, that the Fibres of the muscular Coat of the Pharynx are spiral in a double Order, one ascending, and the other descending, which run contrary Courses, and mutually cross each other in every Winding. Besides these, he made several Observations concerning the Lympheducts.

His Anatomical Works are,

*De Musculis & Glandulis Observationum Specimen*, &c. Hafniae, 1667. in 4to. Amstelodami, 1664. in 12mo. Lugduni Batavorum, 1683. in 12mo. This is in the *Bibliotheca Anatomica*.

*Dissertatio de Cerebri Anatome*. This is translated from the French Edition of 1669. by Guido Fanoisus, Lugd. Bat. 1671. in 12mo. This is also in the *Bibliotheca Anatomica*.

*Observationes Anatomicae, quibus varia Oris, Oculorum & Narium Vasa describuntur, novisque Salivæ, Lachrymarum & Muci Fontes deleguntur; et novum Bilfi de Lymphæ Motu & Ufu Commentum examinatur & rejicitur*. Lugd. Bat. 1662. in 12mo. Ibid. 1680. in 12mo.

This is also in the *Bibliotheca Anatomica*.

*Elementorum Myologiæ Specimen, seu Musculi Descriptio Geometrica. Cui accedunt Canis Carchariæ dissectum Caput, & dissectus Piscis ex Canum genere*. Amstelodami, 1669. in 8vo.

This is also in the *Bibliotheca Anatomica*.

## STOCKHAMERUS, (FRANCISCUS)

In the latter End of the last Century, published the following Anatomical Pieces:

*Microcosmographia, sive Partium humani Corporis omnium, earumque Actionum & Usuum brevis quidem, accurata tamen & atama Descriptio, novis hujus seculi Inventis exornata*. Viennæ Austriæ, 1682. in 12mo.

## STRAUSSIUS (LAURENTIUS)

Flourish'd in the latter Part of the last Century. He published many Pieces, amongst which, those that are Anatomical, are,

*Conatus Anatomicus, aliquot Disputationibus exhibitus*. Francof. 1665. in 4to.

*Microcosmographia Metrica, sive humani Corporis Historia Elegiaco Carmine exhibita, & ad Sanguinis Circulationem, & pleraque nova Anatomicorum Inventa accommodata*. Giesse, 1679. in 8vo.

## SWAMMERDAM (JOHANNES).

He was a celebrated Anatomist of Amsterdam, in the latter Part of the last Century, having been a favourite Pupil of Van Horne, under whom he made a considerable Progress in the Art of dissecting and preparing Bodies.

De Graaf was Pupil to Van Horne at the same Time with Swammerdam, and is charged by Swammerdam with Plagiarism, in stealing the Discoveries of their common Instructor, and claiming them as his own. His Works are in very good Esteem, and are,

*Miraculum Naturæ, sive Uteri Muliebris Fabrica. Notis in D. Joh. Van Horne Prodromum illustrata, & Tabulis a Clariss. Expertissimisque Viris cum ipso Archetypo collatis, adumbrata. Adjecta est Nova Alchodus, Cavitates Corporis ita præparandi, ut suam semper geminam faciem servent*. Lugd. Bat. 1672. in 4to. Ibidem, 1679. in 4to. This is in the *Bibliotheca Anatomica*.

*Tractatus Physico-Anatomico-Medicus, de Respiratione Usûque Pulmonum*. Lugd. Bat. 1667. in 8vo. Ibid. 1679. in 8vo. and L. Bat. 1738. This is also in the *Bibliotheca Anatomica*.

## SYLVIUS (FRANCONIUS DE LA BOE).

He is more known as a practical Author, than as an Anatomist. He was born at Hanover, in 1614; practis'd at Amsterdam; afterwards was a Professor at Leyden, where he dy'd in 1688.

What gives him a Title to a Place here, is his System of the Bile, which, 'tis said, he borrow'd from Nemesius; and the Discovery which he claims of the Os Orbiculare of the internal Ear, whose Situation, however, he mistook; for he thought it was placed on the Side of the Head of the Stapes, whereas it is placed betwixt that and the Incus.

## TAUVRY, (DANIEL)

A French Physician, who published a Treatise of Anatomy, but of no great Character, being remarkable for extravagant Hypotheses, and ill-concerted Theory. This he published under the Title of *Anatomie Rensonnée*, about 1687, being then but eighteen Years old. In 1700 he published his *Traité de la Generation, et de la Nouriture du Fœtus*. He dy'd in 1701, in the 31st Year of his Age.

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## TILINGIUS (MATTHIAS)

Wrote several Anatomical Pieces; but is not remarkable for any new Discoveries. He liv'd in the latter Part of the last Century. His Anatomical Works are,

*De Tuba Uteri, deque Fœtu nuper in Gallia, extra Uteri cavitatem, in Tuba concepto, Exercitatio Anatomica*. Rintbelii, 1670. in 12mo.

*De Placenta Uteri Disquisitio Anatomica, novis in Medicina Hypothesibus illustrata*. Rintbelii, 1672. in 12mo.

*De Admiranda Renum Structura, eorumque Ufu nobili in Sanguificatione, Seminis Præparatione, ac Humoris serosi Sanguine Segregatione, consistente, Exercitatio Anatomica, ex Principiis de Circulari Sanguinis Motu illustrata*. Francof. 1672. in 12mo.

*Anatomia Lienis, ad Circulationem Sanguinis, aliaque Recentiorum inventa, accommodata*. Rintbelii, 1673. in 12mo. Ibid. 1676. in 12mo.

*Παρεκβασις, seu Digressio Physico-Anatomica Curiosa de Vase brevi Lienis, ejusq; Ufu nobili ac egregio in Corporis humani Oeconomia*. Mindæ, 1676. in 12mo.

## TYSON (EDWARD).

This Gentleman was Physician to Bethlehem Hospital, Fellow of the College of Physicians, and Lecturer of Anatomy at Surgeons Hall.

He was a very accurate Anatomist, as appears by several Dissertations, of which he was Author, interspers'd in the *Philosophical Transactions*, and the *Acta Eruditorum*, relating to the human Anatomy, that of Beasts and Insects.

His *Phocæna*, or the Anatomy of a Porpus, dissected at Gresham College, with a preliminary Discourse concerning Anatomy, and a Natural History of Animals, was printed London, 1681.

## VALSALVA (ANTONIUS MARIA)

This Physician was born at Imola, a City of Italy, and was Professor of Anatomy at Bologna. His Treatise on the Ear is esteem'd an excellent Performance, and contains many Discoveries relating to that Organ. He also describes, and gives new Figures of, the Muscles of the Uvula and Pharynx.

## VERHEYEN (PHILIP).

He was born in 1648. He intended originally to turn his Studies towards Divinity; but having lost one of his Legs by a Mortification, he apply'd himself entirely to Physic, and was Professor of Anatomy and Surgery at Louvain, where he acquir'd great Reputation, and died of a Fever in 1711, much regretted by the learned World. His Anatomy bears an excellent Character, and has gone through several Editions, the third of which is that printed Brux. 1726. 2 Vols. 4to.

## VERLE (JOHANNES BAPTISTA)

Wrote a Treatise intitled *Anatomia Artificialis Oculi humani*. This was printed at Amsterdam, 1680. 12mo. and is extant in the *Miscellanea Curiosa*, and in the *Bibliotheca Anatomica*.

## VERNEY (GUICHARD JOSEPH DU).

This celebrated Anatomist was born at Feurs en Forez, August the 5th, 1648. His Father, Jaques du Verney, was a Physician at that Place. He study'd Physic five Years at Avignon, and came to Paris 1667, where he was soon after employ'd in dissecting the Brain, before Assemblies of learned Men, who us'd to meet at the Abbé Bourdelot's, and at Mr. Denys's, a learned Physician at Paris. He acquitted himself so well on these Occasions, that in 1676 he was received into the Royal Academy of Sciences as a Member; and afterwards read Lectures to the Dauphin in Anatomy. In 1679 he was constituted Professor of Anatomy at the Royal Garden.

In 1683 he published his *Traité de l'Organe de l'Oïe*, which the following Year was translated into Latin, and printed at Nuremberg. He dy'd the 10th of September 1730. The above-mentioned Treatise on the Ear is in great Esteem, and is the only Work he published.

## VERSLINGIUS (JOHANNES).

He was Professor of Anatomy and Botany at Padua, in the Beginning of the last Century. His *Syntagma Anatomicum* bears a good Character; of which there have been many Editions adorn'd with Figures; but that of Amsterdam, 1666, with Notes, and an Appendix by Gerard Blasius, is in most Esteem.

## VIEUSSENS (RAYMOND).

He was of Montpellier, and was famous for understanding, with great Accuracy, the Anatomy of the Brain, spinal Marrow, and Nerves, in which he sometimes dissents from Willis. In his *Neurologia* he gives a very good Description, and magnificent Figures, of these Parts. His *Neurographia* was painted Lugd. 1684.

## VIGIERTUS



## VIGIERIUS (JOHANNES).

He was a celebrated Surgeon, and liv'd about the Middle of the last Century. His *Enchiridium Anatomicarum* is printed with his *Opera Medico-Chirurgica*, Hagæ Comitum; 1659. Quarto.

## VIRSUGUS (JOHANNES GEORGIUS).

He was a *Bavarian*, and a considerable Anatomist. He published no Work, but render'd himself famous by the Discovery of the Duct of the Pancreas, which discharges the Fluid, separated in that glandulous Substance, at the same Place where the Ductus communis Cholochochus opens into the Duodenum. This he discover'd in 1642. He was, not long after, shot by an *Italian*, in his own Study, who, it was thought, had been hired to murder him. His Name is sometimes spelt *Wirtungus*.

## VOLKAMERUS (JOHANNES GEORGIUS).

He was a Physician of *Norimberg*, about the Middle of the last Century.

There are a great many detach'd Pieces of this Author in the *German Ephemerides*; besides which he publish'd

*Collegium Anatomicum concinnatum ex clarissimis Triumviris: ex Julii Jafolini, Locris, Quæstionibus Anatomicis. 1. De Cordis Adipe. 2. De Aqua Pericardii. 3. De Poris Cholochochis, & Vesica Fellea. 4. Osteologia parva: Marci Aurelii Severini, Thurii, totidem Epidochis: & Bartholomæo Cabrolis, Aquitano. Hanoviae, 1654, in 4to. Francof. 1668. in 4to.*

*Epistola de Stomacho, scripta ad Doct. Joh. Georgium Sartorium, Aldorphi Noricor. 1682. 4to.*

## WEPFER (JOHANNES JACOBUS).

He was a Physician of *Schaffhausen* in the latter Part of the last Century, and oblig'd the World with many curious Anatomical Pieces; particularly some relating to the Anatomy of People who dy'd Apoplectic. His Anatomical Works are,

*Observationes Anatomicæ, ex Cadaveribus eorum, quos jussit Apoplexia, cum Exercitatione de ejus Loco affecto. Schaff. 1658. in 8vo. Ibid. 1675. in 8vo. Amst. 1681. in 8vo.*

*Historiarum & Observationum Apoplecticarum & similium, potissimum Anatomæ subjectorum Auctarium: cum Scholiis. Ibidem, anno & formâ ejusdem.*

*Historia Anatomica de Puellâ sine Cerebro natâ. Schaffh. 1665. in 8vo. This is in the Bibliotheca Anatomica.*

*De Dubiis Anatomicis Epistola. This is publish'd, together with a Treatise of Jacobus Henricus Paullus, intitled, Anatomica Bilspanæ Anatome, Noriberge, 1664. in 4to. Argent. 1665, in 8vo.*

## WESENFELD (CONRADUS).

I don't know, that this Physician ever published any thing in Anatomy; but *Johannes Petrus Albrecht*, in the *German Ephemerides*, relates, That *Wesensfeld* thought he observ'd, in a Criminal he dissected, some Ducts which pass from the *Intestinum Cæcum* to the Bladder of Urine: But I don't find, that these have been observ'd by any one since.

## WHARTON (THOMAS).

He was an *English* Physician, and in 1656 published a Treatise on the Glands, intitled, *Adenographia*; in which there are many curious Particulars not known before. In particular he discover'd a Duct, which, arising from the conglomerate Glands, which are situated in the inner Side of the lower Jaw, conveys *Saliva*, which it discharges near the Middle of the Chin into the Mouth.

## WILLIS (THOMAS).

He was a Physician, educated at *Oxford*, where he was Professor of Natural Philosophy. He was born in 1620, and dy'd 1677. He was more eminent for his Practice in *London*, than valuable for his Theory, which in many Instances happens to be none of the best. He was, however, an excellent Anatomist, particularly in what relates to the Brain, Nerves, Stomach, and Intestines.

*Piccolhomini* had observ'd before him, that the Brain, properly so called, and Cerebellum, consist of two distinct Substances, an outer Ash-colour'd Substance, thro' which the Blood-vessels, which lie under the Pia Mater in innumerable Folds and Windings, are disseminated; and an inner, everywhere united to it, of a nervous Nature, that joins this Bark (as it is usually called) to the Medulla Oblongata, which is the Original of all the Pairs of Nerves that issue from the Brain, and of the spinal Marrow, and lies under the Brain and Cerebellum. After him, Dr. *Willis* was so very exact, that he traced this medullary Substance, thro' all its Insertions, into the Cortical Substance, and the Medulla Oblongata, and examined the Rises of all the Nerves, and went along with them into every Part of the Body, with wonderful Curiosity. Hereby not only the Brain was demonstrably proved to be the Fountain of Sense and Motion, but also, by the Courses of the Nerves, the Man-

ner how every Part of the Body conspires with any others to procure any one particular Motion, was clearly shewn; and thereby it was made plain, even to Sense, that where-ever many Parts joined at once to cause the same Motion, that Motion is caused by Nerves that go into every one of those Parts, which are all struck together. And tho' *Vicussens* and *du Verney* have in many things corrected Dr. *Willis's* Anatomy of the Nerves; yet they have strengthen'd his general Hypothesis, even at the Time when they discover'd his Mistakes.

He separated the Coats of the Stomach, and examined the several Fibres of the middle Coat, with more Exactness than formerly; he also has been very nice in tracing the Blood-vessels and Nerves that run amongst the Coats; has evidently shewn, that its Inside is covered with a glandulous Coat, whose Glands separate that Mucilage, which both preserves the Fibres from being injur'd by the Aliments which the Stomach receives, and concurs with the Spittle to further the Digestion there performed; and has given a particular Account of all those several Rows of Fibres, which compose the muscular Coat.

## WINSLOW, (JAMES BENIGNUS)

Professor of Physic, Anatomy, and Surgery in the University of *Paris*; Member of the Royal Academy of Sciences, and of the Royal Society at *Berlin*.

In 1723 he published an excellent Work intitled *Exposition Anatomique de la Structure du Corps humain*, 4to.

This was translated by Dr. *George Douglas* into *English*, and published *London*, 1734.

It is esteem'd the best System of the solid Parts of the Body which has yet appeared, and is remarkable for Conciseness and Perspicuity and for the exact Order of the Work. The Author is, however, charged with introducing new Terms into Anatomy without any Necessity, which can only tend to embroil the Science, and perplex Students. The famous *Steno* was great Uncle to *Winslow*.

ANATON. See ANATRON.

ANATRESIS, ἀνάτρεσις, from ἀνά and τρέω, to perforate. It signifies literally Perforation; but by *Galen* is used to signify Trapaning.

ANATRIBE, ἀνατριβή, and

ANATRIPSIS, ἀνάτριψις, from ἀνά, and τριβω, to rub. Friction.

ANATRIS, or, ANTARIS, Mercury.

ANATRON, or, NATRON, is a Salt taken from the River Nile in *Egypt*, by Crystallization, or by Evaporation. It was very probably the Nitre of the Antients, and is rarely found in *Europe*. It is a little acid and alkaline to the Taste.

It ought to be chosen in a Lump, white, looking as if crystalliz'd, ponderous, having the Taste of common Salt, but of a bad Smell, easily moistening in the Air. The *Waltherwomen* made use of it formerly, instead of the Salt of *Kali*, to whiten their Linen; from whence it is improperly called by the Name of that Salt. The Butchers also make use of it in the room of Sea Salt, to season their Flesh-meats.

This Salt is very aperitive, if taken inwardly; externally taken, it deterges, dries, and resisteth a Gangrene. It is an Ingredient in the Composition of the Stone of *Crollius*.

There is also an artificial Anatron called *Anatron Pæditium*; it is compos'd of ten Parts of Saltpetre, four Parts of quick Lime, three Parts of common Salt, two Parts of Roch Alum, and two Parts of Vitriol: All these are dissolved in Wine, and the Dissolution boiled; then strain it, and evaporate it to the Consistence of Salt. It is used as Borax to purify Metals, and put them in Fusion. *Lemery des Drogues*.

There is a very great Difference between the Nitre, or Natrum, of the Antients, and our Saltpetre; which we do not know whether the Antients were acquainted with or not: And, in like manner, their Nitre is almost unknown to us.

By Nitre the Antients understood an acid, alkaline Salt, found in *Egypt*, and other Places, which, as it made an Effervescence with Acids, was used as a lixivial Salt for cleansing Cloaths, and for making Glass. *Solomon* mentions the Effervescence of Nitre with Vinegar, *Prov. xxv. 20.* where he compares a Man that sings Songs with an heavy or afflicted Heart, to a Mixture of Vinegar and Nitre; which Antipathy, or Contrariety, cannot be understood of the common Nitre, or Saltpetre, which raises no Effervescence with Vinegar. The Antients frequently used their Nitre, or Aphronitrum, in Baths, and the Women in their Washes; whence *Jeremiah* says, Chap. ii. Ver. 22. *Though thou wastest thee with Nitre, and takest thee much Soap, yet thine Iniquity is marked before me, saith the Lord God.* This cannot be said of Saltpetre, but of the Lixivium of that alkaline Salt, which was brought from *Egypt* by the Name of Nitrum, or Aphronitrum.

This Nitre easily relented in the Air, fermented with Vinegar, and had an absterfive Quality; and even at this Time, in the Fields of Lesser *Asia*, near *Smyrna* and *Ephesus*, the Earth rises in small Hills, placed very near each other, like Molehills,



Molehills, during the Spring and Autumn, of which the Inhabitants prepare a Ley for washing Cloaths; as also of the Salt they get from that Earth, by dissolving it in Water, they make Soap; as is related by the great *Tournefort*. This ancient Nitre was likewise used to make Glafs, being mixed with Sand, as they afterwards did with the Salt of the Plant Kali, or Glasswort, as may be gathered from what *Tacitus* says, Hist. 1. 5. That the Sands of *Palestine* and *Syria*, near *Egypt*, were made into Glafs with Nitre.

It is evident, therefore, that the Nitre of the Antients was quite different from ours. At this Time it is very little used, and very rare in *Europe*, tho' it was very much in Use amongst the Antients, both for making of Medicines, and for other Purposes of Life. The common Custom of Bathing alone consumed a vast Quantity of it. It served likewise for Dying, for seasoning Viſuals, and for glazing earthen Vessels. Very little of it is brought us; and it is very hard to determine the Aphronitrum, or the *African* or *Egyptian* Nitre, or *Spuma Nitri*, which I believe to be the Baurach of the *Arabians*, and the *Grecian* Nitre. Nitre was a native Salt, of a red or white Colour, and bitter Taste. It did not fly in the Fire like common Salt, nor flash like Saltpetre, but melted, and rose in Bubbles, like Alum and Borax. It made an Effervescence with Acids; and hence I look upon it to have been of the same Nature with the Salt of Tartar, or Pot-ash. See NATRON. *Geoffroy*.

ANATRON sometimes signifies the Gall of Glafs, which is nothing else but the Spume cast up by the Matter of which Glafs is made.

It is also taken for the Terra Saracenicæ, of which there are three Kinds, which are the Black, the Red, and the Azure.

Sometimes it means a white and stony Excreſcence, which grows on Rocks, in Form of a white Moss, and is called by some *Sal Nitrum*. It is also called, *Anachron*, *Anatrum*, and *Anaton*. *Castellus* from *Ruland*. *Johnson*, *Schrod*. *Hoffm*.

ANATROPE, Ἀνατροπή, from ἀνατρέω, to subvert. A Subversion, literally, or Relaxation of the Stomach, attended with Loss of Appetite, Vomiting, and Nausea. *Galen*. The Verb ἀνατρέω, in *Hippocrates*, *Lib. de Art.* signifies to subvert, ruin, and destroy.

ANATRUM, the same as *Anatron*.

ANATUM, Egg-shells. *Johnson*.

ANAUDOS, Ἀναυδός, the Word is explained by *Galen* on *Hippocrates*, to signify one that has lost the Use of Speech, and *Aphonos*, Ἀφρονός, to mean one who can utter no Voice. In the former, the Organs of Speech, or articulate Voice, are injured or clogg'd; the other, who has utterly lost his Voice, has the Instruments thereof, as the Larynx, with the Muscles and Nerves thereto belonging, disabled from performing their Function. The Word is derived from a Negat. and αὐδῆ, Speech; as *Aphonos*, Ἀφρονός, comes from a Negat. and εἶρη, Voice.

ANAVINGA. *Buccifera Indica*, *Fruſtu rotundo cuspidato*, *Ceraſi Magnitudine*, *polypyræno*. *Anavinga* H. A. P. 4. T. 49. p. 101.

A Tree of a middle Size, that grows in *Malabar* in the *East-Indies*, especially about *Cochin*. It is an Evergreen, and its Fruit, or Berries, are ripe in *August*.

The Juice of the Berries drank excites Sweat, cures malignant Distempers, and keeps the Belly soluble. The Decoction of the Leaves in Water makes a fit Bath for such are affected with Pains in the Joints. *Raii Hist. Plant*.

ANAXYRIS, Ἀναξυρίς, a Name for a kind of *Lapathum*, called otherwise *Oxalis*, and *Lapathum agreste*. *Oribas. Med. Coll. Lib. 11*.

ANAXYRIDES, Ἀναξυρίδες, in *Hippocr. de Aere*, &c. signifies a sort of Breeches, or Drawers, worn by the *Scythians*, from ἀνασείω, to draw upwards, changing σ into ξ.

ANBLATUM, *Cordi*, five *Aphyllon*, J. B. *Orobanchæ Radice dentata*, major, C. B. *Dentaria major Matthiolo*, Ger. *Orob. Radice dentata*, five *Dentaria major Matthiolo*, Park. The GREATER TOOTHWORT.

It flowers about the latter End of *April*, and Beginning of *May*. It has been observed in a shady Lane, not far from *Darling*, in *Surry*; at *Bredgate*, near *Sittingborn*; about *Chisilburſt* and *Maidstone*, in *Kent*; near *Dalston*, in *Westmorland*; and *Heptonſtal*, in *Yorkshire*. *Syn. Ship. Brit.* 288.

I find no Virtues ascribed to it. *Martyn's Tournefort*.

ANCHIA, a Word used by *Avicenna*, and sometime by *Forrestus*, and signifies the same as *Coxa*. *Castellus*.

ANCHILOPS.

The Anchilops is a Tumour situate at the great Angle of the Eye, for the most part, under the Conjunction of the Eye-lids; it degenerates into an Abscess, and is twofold, the one, attended with Pain, the other almost without any Pain.

The Anchilops with Pain is often accompanied with a violent Fever, which continues till the Matter is formed and discharged.

The Anchilops with little Pain is, for the most part, free from a Fever; the Swelling of the great Angle is light, and the Colour of the Skin but little changed.

This Tumour is produced by various Causes: 1. By the Lymph, which passes from the Eye through the Lachrymal Points, into the Nose. For, if this Humour, which ought to enter these small Channels, be vitiated, or the Parts, through which it should pass, be obstructed, it will certainly cause, by its Stagnation, an Abscess in the great Angle. This Lymph may be vitiated in a twofold manner: 1. When, through its Acrimony, it corrodes the inward Parts of the Lachrymal Bag, and so causes an ouſing of purulent Matter, which enters the Lachrymal Duſt, and stops it. The Lachrymal Lymph, being thus intercepted in its Passage, fills the Bag, swells it, and raises the upper Part of it, as appears from an Eminence, or Riling, under the Union of the Eye-lids: If this Eminence be pressed, the Matter regorges through the Lachrymal Points.

2. When the Lachrymal Lymph grows too thick or viscid, as it cannot pass through the Nasal Duſt, it stagnates in the Lachrymal Bag, and there produces a Riling like to the before-mentioned Eminence, with this Difference, that, when the Tumour is pressed, the Humour flows through the Nose; this does not happen, when the Tumour is produced by the first Cause. Sometimes there is no Defect in the Lymph, but the Membranes, which form the Lachrymal Duſt, are inflamed. As this Duſt is obstructed through the Distention of its spongy Tissue, the Serosity must stagnate in the Lachrymal Bag, and by stagnating becomes acid, and excoriates the Inside of the Bag, from whence the forementioned Accidents arrive.

This Repletion of the Lachrymal Bag, from the Stagnation of its Lymph, is called by some a *Dropsy*, whether, when the Bag is squeezed by the Finger, the Lymph passes through the Nose, or flows towards the Eye. But this new Name for this Disease is altogether improper; for all Dropsies suppose an Accumulation of a watry Humour in some Cavity, out of which it has no Egress. But, in the present Case, the Matter contained in the Lachrymal Bag may be squeezed out; nay, the very Lymph passes through most Peoples Noses, when they are asleep; so that, in the Morning, the Bag is empty, tho' three Hours after the Patient has got up, the Bag fills again, which obliges him to empty it. This Observation seems to shew, that, whilst the Patient is in an erect Posture, the Lachrymal Bag forms a sort of Fold, or Plait, which stops its inferior Passage.

When the Lachrymal Bag is filled in the above-mentioned manner, and the contained Humour is too thick to pass off, either through the Lachrymal Points, or through the Nasal Duſt, it causes an Inflammation, which turns to an Abscess, and forms the present Disease. What has been premised, sufficiently delineates the Signs of an Anchilops, when it is formed; but it is hard to know it, in the Beginning; notwithstanding, when the Tears cease to flow through their usual Passages, or when they flow with more Difficulty, a filmy Humour may be perceived at the great Angle, attended with a light Inflammation, with Pain, Itching, and a Flux of Tears. These Symptoms accompany most Desfluxions.

When the great Angle of the Eye is pressed, if a whitish Humour flows through the Lachrymal Points, or the Eminence in the Lachrymal Bag appears, there is Reason to fear the Humour, contained in that Cystis, will become acid, and an Abscess ensue.

Abscesses of the great Angle, for the most part, degenerate into a Fistula Lachrymalis, and sometimes into a Cancer, when their productive Humour is malignant.

Care must be had to examine strictly, whether the Abscess opens into the Lachrymal Bag, or whether it be only superficial between the Skin and the Orbicular Muscle. In the latter Case, there is no Fear of its changing to a Fistula, if the Matter is not lodged between the Bag and the Muscle. When, by the precedent Signs, we perceive the Lymph is obstructed in the Lachrymal Bag, we must immediately apply Remedies to prevent the Increase of the Distemper; for which Reason the Patient must be let Blood. Let him take every Morning a Broth made of Veal, Chervil, Bugloss, Borrage, and Succory; he must likewise be purged from time to time. He must use the House Baths, and other Remedies proper to rectify the bad Crasis of the Lymph. In this Case, Injections through the Lachrymal Points are chiefly useful; but you must take care, if the Bag be considerably dilated, to press it a little with your Finger, whilst you syringe; otherwise the Injection, instead of doing any Good, will be very pernicious; for, without this Precaution, the injected Liquor will cause a greater Dilatation of the Bag: After you have used the Syringe five or six Days, if the Injection through the Lachrymal Points does not pass into the Throat, or flow through the Nose, it is of no Service; which confirms my Opinion, that it is proper only in simple Obstructions of the Lachrymal Bag, but not in a Fistula Lachrymalis.

A Bandage, that shall compress the Lachrymal Bag in its Elevation, will be more efficacious than the Syringe; for it continually forces the Humour towards its lower Orifice. Let the Outside of the Eminence be rubbed three times a Day with *Hungary* Water.

Let the Inside of the Eye be washed with hot Wine, in which you may mix some Drops of the *Friers Balsam*. (See BAL-



SAMUM COMMENDATORIS). Every Night, let a Compress, dipp'd in this Wine, be laid to the great Angle. Some People are cured by this Method, when the Obstruction of the Lachrymal Bag is small, and the Os Unguis is not affected.

The Abbot *de Grace* has sometimes cured with his Plaister, Fistulas and Abscesses of the great Angle; he laid on a Plaister, that covered the whole Eye, for the Space of a Month, still wiping the Eye Night and Morning, and applying every Day a fresh Plaister. In any of the preceding Cases, when an Inflammation of the Lachrymal Bag supervenes, tho' it should be caused by a Flux of Humours on that Part, the Patient must be let Blood, and you must apply Remedies that will prevent the Increase of the said Afflux. The Pulp of a roasted Apple, mixed with the White of an Egg, or Pulp of Cassia, and a roasted Apple, of each an equal Quantity, mixed together, are very good. If the Os Unguis be not infected, to cure the Ulcer, make use of the Plaister of the Abbot *de Grace*; at the same time you must take care to purge the Patient, as the Disease shall require. When you perceive the Matter in the Lachrymal Bag is changed to Pus, you must not wait the spontaneous Discharge of it; for, by a long Continuance, it may generate a Caries in the circumjacent Bones; for which Reason you must open it with a Lancet, still observing the Direction of the Fibres of the Orbicular Muscle; dress the Wound with the Plaister of the Abbot *de Grace*. See FISTULA LACHRYMALIS. *St. Jvrs.*

The Plaister above-mentioned is made of discusive, and some restringent, Ingredients.

ANCHOAS, a Name which the Natives of *Mexico* have for the Male Ginger, which differs from the Female, or common Ginger, in having rougher and thicker Leaves, with a greater and thicker Root, which has a more acrimonious Taste, with a kind of Bitterness. *Hernand.*

Its Place of Growth, and Virtues, are the same with those of the common Ginger. See ZINGIBER. *Raii Hist. Plant.*

ANCHORALIS PROCESSUS, is the same as the *Processus Coracoides*. See CORACOIDES.

ANCHUSA, a Plant thus distinguished:

ANCHUSA, Offic. Chab. 516. Park. Parad. 250. *Anchusa Monspeliensis*, J. B. 3. 583. *Raii Hist.* 496. *Anchusa puniceis floribus*, C. B. Pin. 255. Boerh. Ind. A. 189. *Anchusa minor purpurea*, Park. Theat. 517. *Anchusa, Alcibiadion*, Ger. 656. Emac. 800. *Buglossum radice rubra*, five *Anchusa vulgaris, floribus caeruleis*. Tourn. Inst. 134. *Buglossum radice rubra*, five *Anchusa vulgaris*, Elem. Bot. 110. *Buglossum perenne minus, puniceis floribus*. Hist. Oxon. 3. 438. ALKANET. *Dale.*

ANCHUSA, by some called *Calyx*, by others, *Onoclea*, has Leaves like those of the sharp-leaved Lettice, hairy, rough, black and numerous, lying round about the Root close to the Ground, prickly. The Root is of a Finger's Thickness, inclining to a Blood-colour, sends forth Shoots in the Summer, and stains the Hands; it grows in a fertile Soil.

The Root is astringent, and good for Ambustion, and old Ulcers, being boiled in Wax and Oil. Apply'd in a Cataplasim with Barley-meal, it cures the Erysipelas; and, anointed with Vinegar upon the Part affected, cleanses the Alphas and Leprosy. Applied by way of Pessary, it extracts the dead Child. The Decoction of the same is given to those who are afflicted with the Yellow Jaundice, and Infirmities of the Kidneys or Spleen; and if there be a Fever, it is mixed with Hydromel. The Leaves, drank in Wine, bind the Belly. The Dealers in Ointments also use the Root to incrassate their Compositions. *Dioscorides, Lib. 4. Cap. 23.*

Another *Anchusa*, which some call *Alcibiadium*, or *Onochiles*, differs from the first in having smaller Leaves, though rough like them, and slender Stalks, which bear a purplish Flower. The Roots are red, of a good Length, and, about the time of Wheat-harvest, full of a Blood-like Juice; it grows in a sandy Soil.

Both the Root and the Leaves are good against the Bites of venomous Beasts, and especially of Vipers, whether they be eaten, drank, (in Infusion) or worn as an Amulet, even so far, that if a Person, after chewing them, shall spit in the Mouth of a venomous Creature, he will kill it. *Idem ib. Cap. 24.*

There is a third Species of *Anchusa*, like the former, bearing a lesser Seed of a red Colour, which if a Person chew, and afterwards spit in the Mouth of a Serpent, it will die. The Root, taken to the Quantity of an Ounce and half, with Hyssop and Nasturtium, expels the broad Worm. *Id. Cap. 25.*

The Root cleaves like the Papyrus; it stains the Hands of a bloody Hue, and prepares Wool to receive costly Colours. It will not dissolve in Water, but in Oil, which is a Proof of its being genuine. A Dram of it in Wine is prescribed for Pains in the Kidneys; or if there be a Fever, in a Decoction of the *Balanus*. The Leaves, bruised with Honey and Meal, are applied to Luxations; and, drank to the Weight of two Drams in Mulsim, stop a Looseness. A Decoction of the Root in Water is said to kill Fleas.

There is another Plant like this, and therefore called the *Pseudanchusa*, and by some *Enchusa*, or *Doris*, and many other

Names, being more downy, and not so fat, but of a thinner and weaker Leaf. The Root yields no Oil, but a red Juice, by which it is distinguished from *Anchusa*. The Leaves are applied to Hurts received by Blows. It expels the Poison of Serpents, and is drank also to drive out Thorns from the Flesh. The Magi order the Leaves to be pluck'd with the Left-hand, and that you specify the Person for whom you take them, and then tie them about the Body as an Amulet, against a Tertian.

There is yet another Herb, whose proper Name is *Onochiles*; but some call it *Anchusa*, others *Anebion*, some *Onochelis*, others *Rhexias*, many name it *Enchusa*. It has a purple Flower, rough Leaves and Branches, a Root, in time of Harvest, of a Blood-colour, at other times black; but it is most efficacious in Harvest. The Leaves, bruised, smell like Cucumber. Three Ounces are a Dose for the Falling down of the Uterus. Those who carry it, they say, will not be hurt by Serpents.

Another Herb, like to this, but less, has a red Flower, and the same Virtues. *Pliny, Lib. 22. Cap. 20, 21.*

*Anchusa* and *Cinnabar* were used by the Antients, to give an agreeable Colour to their Ointments; and where there was *Anchusa* used, they put no Salt to prevent the Oil in those Compositions from growing rancid. *Idem, Lib. 13. Cap. 1.*

The Root of *Anchusa* was also serviceable in colouring Wood and Wax. *Idem, Lib. 21. Cap. 16.*

The Root of *Alkanet* is thick and woody, white within, and covered with a red Bark, which gives a red Dye or Tincture to any thing it is infused in: The Leaves are long, rough and hairy, in Shape like the common *Viper's Bugloss*; the Stalk grows about two Foot high, having many long narrow and hairy Leaves, disposed in alternate Order. On the Top of the Stalks grow the Flowers, thick set together in Bunches, of a purple Colour, smaller than *Bugloss*; each Flower consisting of a single Cup, divided at the Top into five sharp Segments, standing in a long hairy five-leaved Calyx, in which, after the Flowers are fallen, grow four longish Seeds.

It grows with us only in Gardens, and flowers in June. The Roots only are used.

*Parkinson* highly commends the Infusion of the Bark in *Petrolæum*, as excellent in fresh Cuts, and green Wounds; at present it is very little used. *Miller's Bot. Off.*

The common *Alkanet*, *Anchusa*, Offic. is brought from *Languedoc* and *Provence*, being the Root of the *Buglossum Radice rubra*, five *Anchusa vulgaris*. The Root is astringent, and proper in Hæmorrhages of all Kinds. Apothecaries employ it to colour their Ointments, particularly the *Unguentum Rosatum*; but, for this Purpose, it must be boil'd in Oil; for it does not readily communicate its Tincture to Water. The Antients used it as a Cosmetic, as is mentioned by *Galen*. *Geoffroy.*

It contains a great deal of Oil, and a little Salt.

It stops Fluxes of the Belly, being made into a Decoction.

They bring from the *Levant* sometimes a kind of *Alkanet*, called *Alkanet of Constantinople*.

It is a kind of Root, near as thick, or as large, as a Man's Arm, but of a particular Figure; for it appears a Collection of great Leaves, twisted like a Roll of Tobacco, of different Colours, but generally of an obscure Red, and of a very fine Violet. There appears at the Top of this Root a kind of white or bluish Hoariness. They find in the Middle a Heart, which resembles a thin Bark, roll'd up like Cinnamon, of a fine Red without, and White within: In Appearance, the Root looks as if it was artificial. But whatever it be, it yields a finer Tincture than ours. *Lemery des Drogues.*

ANCHUSA LUTEA, Offic. Ger. 656. Emac. 800. J. B. 3. 583. *Raii Hist.* 1. 497. *Anchusa lutea major*, Park. Theat. 515. C. B. Pin. 255. *Anchusa lutea varior & elegantior*, Chab. 516. *Symphytum Echii folio ampliore, radice rubra*, Elem. Bot. 114. *Symphytum Echii folio ampliore, radice rubra, flore luteo*, Tourn. Inst. 138. YELLOW ALKANET.

There are three Species of *Anchusa* described by *Dioscorides*; but what Plants they are, is not agreed among Authors, one naming this, another that. *Cæsalpinus* and *Thalys* call the common *Vipers Bugloss* by this Name. *Turrius*, *Dodonæus*, and *Cordus*, refer two of the Species to *Bugloss*, for what Reason, I am a Loss, since the characteristic Mark, which is the Root's staining the Hands with a Blood-colour, belongs to neither of them.

The more modern Botanists acquaint us with several Species of this Plant: Those two, which I have here given, I am of Opinion, with *C. Bauhine*, are the second and third Species of *Dioscorides*, whose first seems to be only a larger Sort of the second. *Dale.*

ANCHYLE, the same as ANCYLÆ, which see.

ANCHYLOPS, the same as *Anchileps*.

ANCHYLOSIS, the same as ANCHYLE, ANCYLE, or ANCYLOSIS, which see.

ANCHYNOSES, a Name for the *Phoenix*, or *Ray-grass*, in *Oribasius*, *Med. Coll. lib. 12.*

ANCHYROIDES. See CORACOIDES.

ANCI, in Greek, Γαλιδραια, *Weasel-elbow'd*, from γαλιδ, a *Weasel*, and ἄγκυρ, an *Elbow*. So *Hippocrates* calls those,



who, from slipping of the Head of the Os Humeri into the Ala, have an Arm shorter and smaller than it ought to be, and the Cubit, or Elbow, of a Weasel, whence they are called by some *Mustelanci*, which fully expresses the Greek Word; or barely *Anci*.

The Disorder that gives Occasion to the Name, happens either in the Womb, where the Os Humeri suffers a Luxation from too much Moisture, or in tender Years, by means of an Abscess deeply seated about the Head of the Os Humeri. *Foefius*.

ANCINAR, Borax. *Rulandus*.

ANCISTRON, Ἀγκίστρον, a Hook.

ANCON, Ἀγκών, the gibbous Eminence, or Flexure of the Cubit, the Middle of that Eminence, on which we lean, being the greatest of the two Apophyses of the Ulna, and the same with the *Olecranon*. *Castellus*, *Winslow*.

ANCONÆUS MUSCULUS. It arises by a round and short Tendon from the Back-part of the external Condyle of the Os Humeri; this soon grows fleshy, and is so intangled with Part of the *Brachæus Externus*, that there can be no separating them without Violence.

It is inserted fleshy and thin into the Lateral Part of the Ulna, a few Inches below the *Olecranon*.

Its Use is to assist in extending the Cubitus. *Douglas*.

ANCORA, Calx. *Ruland*. *Johns*.

ANCORALIS, the same as ANCHORALIS.

ANCOSA, Lacca. *Ruland*. *Johns*.

ANCTER, Ἀγκήτης, the Greek Term for a Fibula, or But-ton, in Surgery, by which the Lips of Wounds are joined and held together, *Celsus*, *Lib. 5. Cap. 26.* which Operation is called *Ancleriasmus*, Ἀγκλησμός, according to *Galen*. See FIBULA, and SUTURA.

ANCUBITUS, an old Term, by which was meant that Affection of the Eyes, in which they seem'd to contain Sand, or small Pebbles. It was also called *Petrification* by *Johannes Anglicus*. *Castellus*.

ANCUNULENTÆ. Women are so called in the Time of their Menstruation, as contracting *Inquinamentum* [Pollution]. *Festus*. From the Greek Κόπυς, comes the Latin *Cunum*, from whence are derived *Cunire* and *Inquinare*.

*Ancunulenta* is compounded of *An* for Ἀντι, and *Cunio* quasi Κονιάω, *Inquino*, to pollute.

ANCUS. "A Name for such as have an Arm bent crooked, " so that they cannot extend it." *Festus*. From Ἀγκών, an Elbow, according to *Servius*. "Ancus, mancus, καλλός, λαός." *Vet. Glossarium*. *Tarro* takes it for a Sabine Word, but it is certainly derived from the Greek Ἀγκή, which signifies the Bending of the Arm. The Greeks also use Γαλιαγκών, [*Galiancon*] for Ancus. See ANCI. *Baxter's Glossarium*.

ANCYLE, and ANCYLOSIS, from Ἀγκύλη, crooked. A Distortion, a Fixation (ἄλσος) of the Joints, caused by a Settlement of the Humours, or a Distention of the Nerves. *P. Æginet. Lib. 4. Cap. 55.* *Actuarius, Meth. Med. Lib. 4. Cap. 16.*

In this Case, Remedies of a mollifying and relaxing Nature are required; in general, such as are appropriated to Scirrhoties, or rather, to Resolutions of the Parts. Particular Medicines are, a Perfusion of Water and Oil, in which have been boiled Linseed, Fœnugreek, Marsh-mallow, Bay, and Root of Wild Cucumber, and *Sycamian* Oil. After Perfusion, proper Applications may be made of some of the more simple *Acopa*, for Instance, that prepared of the black Poplar, and another of Fir, or the *Bromm*, *Aristophancum*, *Azanita*, *Lysiponium*, or *Parium*. Proper Plaisters are that of *Amythæon*, the *Anicetum*, and the following, which is excellent:

Take of Bdellium, Fat of a Calf, Gum Ammoniac, *Illyrian* Orris, each sixteen Drams; of Opopanax, Galbanum, Rosemary-seeds, Styrax, Frankincense, each eight Drams; Grains of Pepper, one hundred and sixty; Wax, half a Pound; Resin of Turpentine, half a Pound; Dregs of Oil of Orris, a sufficient Quantity; Wine, a sufficient Quantity; beat them up together.

This also makes a good *Acopa*, moistened with *Unguentum Irinum*, *Cyprinum*, or *Laurinum*. Of a middle Nature, betwixt *Acopa* and Plaisters, is the compound *Pharmacum à Pernâ*.

Your *Acopa* must be used by long and gentle Affriction, together with Endeavours to bend and stretch the affected Joint. *Paulus Ægineta, ibid.*

The Malagma of *Euthyleus* for the Joints, for all Sorts of Pain, and particularly in the Bladder, and for Contractions of the Joints, after they have been newly cicatrized, (which the Greeks call ἄγκυλα) consists of

Soot of Frankincense, Rozin, half a quarter of a Pint; Galbanum without the Branches, an Ounce and an half; Gum Ammoniac, Bdellium, of each one Dram two Grains and an half; of Wax, one Dram thirty-three Grains.

Another Malagma is thus prepared:

Take of Orris, Gum Ammoniac, Galbanum, Nitre; of each one Ounce six Drams thirty-five Grains; Liquid Rozin, six Drams fifteen Grains; of Wax, two Ounces two Scruples. *Celsus, Lib. 5. Cap. 18.*

I don't well understand what *Celsus* means by *Fuligo Thuris*, unless the Soot arising from Frankincense, when burnt in Temples as Incense.

When a Joint, or Articulation of the Bones, grows stiff, and the peccant Matter there settles and hardens, which Disorder the Greeks call *Ancylosis*, if it proceeds from an Effusion and Concretion of the Juices of some broken Bone, the Cure, in such a Case, will be very difficult. But if this Stiffness be the Consequence of too long a Rest, or the Inspissation of the Humour which lubricates the Joint, it may not be altogether unreasonable to ply the Part affected with emollient Fomentations, and Bathings often repeated, especially the natural Baths; to be often rubbing it thoroughly with Oils, Fats of Animals, or mollifying Ointments, and with your Hands to move and infect it this way and that way, till its former Flexibility be perfectly restored. *Heister*.

The following Case is related by Mr. *Malouet* in the Memoirs of the Academy of Sciences for 1728.

A young Man, three-and-twenty Years of Age, had, for more than a Year past, his Leg quite bent backwards, without being able, in all that time, to extend it in the least. He felt great Pains in his Knees, which were more acute at some Seasons than at others, but sometimes were so violent, that when he was in Bed, he could not bear the Weight of the Bed-clothes on his Knee, insomuch that, during four Months, he was obliged to support them with a Hoop, to prevent their touching him. Though these Pains were much less troublesome at certain Seasons, they were always felt, if any Pressure was made on the affected Part, and rendered him incapable of using a wooden Leg, which, through the Compression which his Knee must have suffered by resting on it, would not have failed to render his Pains more acute.

He was no less incapable of walking by the Help of two Crutches; for whenever he attempted it, the Weight of his Leg made him endure insupportable Misery in his Ham. He had tried to free himself from this Inconvenience, and from the Necessity of keeping his Bed, by the Help of a Swathe; but as this Expedient did not secure that Part sufficiently immoveable, it did not ease him in the least of his Sufferings.

The Surgeons in the Country, who passed for Men of Skill, being persuaded that it was an *Ancylosis*, in which the Leg and Thigh were ossify'd together, had for a long time used several Sorts of Remedies in vain, till at last, after several Consultations held upon the Affair, they concluded, that no other Method was to be taken but Amputation of the Thigh.

Some Persons of Consideration, who commiserated the Patient's Case, prevailed with him to let himself be brought to *Paris*, in Hopes that he might there find such Relief as would save him from coming to that Extremity.

Being arrived there in the Month of September last, he consulted the most experienced Surgeons in those Sorts of Maladies. They were of Opinion, there was no other Remedy for him but cutting off his Thigh.

He was so disheartened at the sad Condition to which he was reduced, and sometimes felt such exquisite Pains, that at last he made his Choice, and determined to undergo the Operation. As the Success was doubtful, and he must run a Hazard of his Life, the Surgeons, by a wise Precaution, had given Notice to the Vicar of the Parish, that he might administer to him the Sacraments; and because I had an Opportunity to visit the Patient, they made me acquainted with the Resolution they had taken to perform the Operation, as a thing liable to no Objections, with an Intent only, that I should prepare him for it by Purgations, and other Medicines, as I thought proper.

Thinking myself obliged to examine into the Disorder which gave Occasion for the Amputation of this Thigh, I had the affected Part uncovered, and found, that of the two inferior Condyles of the Os Femoris, that on the Inside was a little thicker than it ought to be, as well as the Inside of the superior Extremity of the Tibia. This Thickness was not painful, not even when it was pressed; and the Pain which the Patient felt at his Knee, was directly at the Place of the Ligament which fastens the Patella to the Tibia. I observed no Tumour in the Flesh; on the contrary, the Leg was considerably wasted.

Tho' the Excess in Bigness, which I had observed in that Knee, did not appear to me of Bulk sufficient to be the Cause why the Patient could not in the least extend his Leg, yet if we may judge from what usually happens, it might proceed from some disorderly Situation of the Heads of the Bones, in Consequence of which they might have been solder'd together by a Liquor, diffusing itself at the Joint, and by its Inspissation conglutinating them in such a manner as of two Pieces to make but one; a Disorder but too common, and the Cause why

none



none of the folder'd Bones thus united can any longer stir with its proper Motion, nor consequently play in their Articulations. But as I had made no such Observation on the Knee of this Patient, whatever Efforts he made to stretch out his Leg, I was willing to be assured, whether any such Cause operated in the present Case.

For this End I endeavour'd to extend the bended Leg, by making an Effort to pull it out strait with my Right-hand, while I kept down his Thigh with my Left. I observed, that the Leg bended, tho' indeed it was not without Difficulty on my Part, and Pain to the Patient. Wherefore I made no greater Efforts to extend it more, as well because I was persuaded, by the Resistance which I found, that I should hardly accomplish my Design, as because I was unwilling to increase his Pains, and render them insupportable. However, since the Leg return'd to its former State of Flexion, as soon as it was left at Liberty, and I believed it was of Importance to be assured, whether the Leg had this Motion in common with the Thigh, I repeated at several times my Efforts to extend it, and always with the same Success.

I was then persuaded, that the Bones were not foldered together; for in that Case not only the Limb has no more Play in its Articulation by its proper Organs, but it is also impossible to procure it by any outward Assistance, either in extending it when it is bent, or bending it when it is extended, unless the Bones should unfold, or break, neither of which, I was sure, had happen'd by the Efforts I had made.

I was obliged then to search somewhere else for the Cause which held the Leg in this Posture of Inflection, and quite disabled the Patient from extending it.

I examin'd the Tendons of the Musculi Flexores, and found they were extremely tense, and drawn back towards their Origin. I was satisfy'd there needed no more to hold the Leg in this inflected Situation, and thought I had discover'd the Cause. But in order to be better assured, if it were possible, I question'd the Patient about the Manner in which this Disorder happen'd to him, in Hopes to procure some Light from thence.

He told me, that in the Month of *August* 1726. he had a Fever, which lasted forty-five Days, the first fifteen or sixteen of which he had lain under a Delirium; that during all that Time, he struggled, and would have come out of his Bed, so that they were forced to tie him in it; that he had found means to untie himself, and to throw himself out of Bed upon the Floor; that he had been blooded seven times, four times in the Arm, and thrice in the Foot; that he knew all this to be true, because his Companions had related it to him, when he was come to himself; that then he perceived his Right Leg was quite bent, since which Time he could by no means stretch it out, whereas before it had always been as the other; that he had never felt any Pain in his Knee, nor felt any thing extraordinary, till this Time.

This Account did the Patient give me of the Condition he was in when this Disorder of his Knee seiz'd him; and I believed, that I had Reason to conclude, that the Illness, of which he gave the Particulars, was a continued Fever, attended with a Delirium; and as such a Symptom is accompany'd with convulsive Motions, of which it is usually the Cause, I judg'd from this Relation, that the Tension which I observed in the Flexores Musculi of the Leg, might well be the Consequence of a Convulsion of those Muscles, at the Time when the Patient was under the Delirium; in Consequence of which they might continue thus shrunk back by means of some Matter, which was capable, by swelling them, of keeping them in this contracted Condition, and was of a Nature not fitted to disperse, either of itself, or by the Remedies hitherto used.

Whether this Reasoning be just or not, which I propose only as a Conjecture concerning the Origin of a Disease, of which I never saw the Beginning, I was persuaded by the Patient's own Account, and by what I observed of his present Condition, that the Reason why his Leg was thus inflected, and incapable of being extended, was because the Flexor Muscles were shrunk back and shortened.

Far from considering the Disorder as incurable, on the contrary, I believed it was very easy to be cured. Wherefore I oppos'd the Amputation of the Thigh, and set myself to think of some Remedies, by which I might cure the Patient, and at the same time preserve his Limbs intire.

In pursuance of the Notion which I had formed of the Disorder, I propos'd to myself the mollifying and relaxing of the Fibres of the Muscles, which by their Contraction held the Leg bent, that I might give them that Suppleness which they wanted, in order to extend and stretch themselves out at full Length. I propos'd to myself also the Dissolution and Discussion of the Matter which might be lodged in their Interstices, and, by keeping them swelled, hinder'd their Lengthening or Extension.

I thought I should endeavour to answer these two Indications at once, and that I might succeed, by putting the Patient in an aromatic Bath of hot Water, which seem'd to me the most proper Means for penetrating to the very Muscles, which

were shrunk backwards, and to produce the Effects which I had in View, as well on account of its Heat and Fluidity, as of the volatile Parts with which it would be impregnated.

After some general Remedies, which I gave the Patient, I order'd a Bath of this Kind. He went into it twice a Day, and stay'd there an Hour, or an Hour and an half, each time (Observe it was a whole Bath, which, acting equally upon the whole Mass of Blood, was much more efficacious than a Semicupium). At the fourth Bathing the Patient's Leg began to extend itself, and continued so to do in such a manner, that the eighth Time, when he got out, he set his Foot to the Ground, and was in a Condition to walk with two Crutches.

From that time the Pain of his Knee went off, and he never felt it since. After bathing seven Days, that is, fourteen times, I order'd him Rest, and even during that Rest his Leg extended itself more and more, and at last equally with the other, so that he had no Need of Crutches, but was oblig'd to use a Stick in walking, because he had still a Pain in his Ham, when he stretch'd it out. When he walk'd, he felt a Pain in the upper Part of his Foot, which I imputed to the Inaction in which he had been for a long time, by which some of the Parts had acquired a Dryness, or a Stiffness, which put them out of a Condition of readily complying with the different Motions necessary for walking.

To remove these Symptoms, I order'd Embrocations under the Ham, and upon the Foot, with Oils of Earth-worms, and St. John's-wort, mixed in equal Parts. By the Use of these Remedies for ten or twelve Days, the Motion of his Foot became less painful, and that of his Leg more free.

Mean while, as there still remained some little Stiffness in the Tendons of the Musculi Flexores of the Leg, I judg'd it proper for the Patient to repeat his Bathing, after purging him again. At the End of four Days finding him fatigued, I made him intermit it; and in short, after a Rest of fifteen Days, I made him repeat it for six Days, twice every Day. He bore it very well, and was perfectly cured; so that from that Time he has felt no Pain in his Knee nor Foot, except sometimes after he has walk'd a great deal. He stretches and bends his Right Leg as easily as his Left, he walks and runs without Cane or Stick; in short, since he has been cured, he has employ'd himself in clearing a Garden, tho' he is able to live without it, and spent his Time in carrying Earth and Stones, and doing other Works of that Nature, without feeling any Inconvenience.

However, tho' his Right Leg has recovered much of its Flesh, it has not yet attain'd to the Bigness of the Left, and his Knee always appears a little bigger than the other. This proves, that it was not this Excess in Bigness that held his Leg thus bent, and hinder'd its Extension.

The Leanness of this Leg might be imputed to the Alteration that its Flexion, which lasted above a Year, produced in the Tubular Vessels appropriated for the Conveyance of nutritive Juices to that Part. Those Tubes, instead of strait, as they commonly are, becoming very much bent, and by that means incapable of receiving, and consequently of supplying the Leg with a sufficient Quantity of those Juices, which occasion'd its Leanness, grew narrow and streighten'd; wherefore, though at present they have their first Direction, the Leg has not been able to recover its former good Plight, because they have not as yet resumed their natural Diameter.

With respect to the Bigness which remains on the Inside of the Thigh, I don't think, that we ought to regard it as an Exostosis of a bad Kind, that is, which was produced by a Depravation of the nutritive Juices, which had altered the Substance of the Bones; because they appear to be in their natural State, and the Bigness there observed is without Pain, Softness, Redness, or Swelling of the Skin, and does not incommode the Movement of the Articulation, which is a Symptom, that, for the most part, attends Exostoses of a bad Kind.

This Bigness then ought to be imputed only to a greater Quantity of nutritious Juices with which that Part was supply'd, whether owing to some natural Disposition, as we see in those Persons who have naturally one Part bigger than another, or to some Blow or Fall; or, lastly, to the bending Posture in which that Leg continued for so long a time, which State of Flexion, having been capable of making way for the Leanness of the fleshy Parts, might also be the Occasion of this Excess in Bigness of the bony Parts. These two Effects, tho' contrary, may proceed from the same Cause; of which we see an Example in the Rickets, where the Heads of the Bones increase considerably, while the fleshy Parts fall to Decay. But that we might give a Reason adapted to the Subject, let us suppose, that the Blood not having been capable of flowing in so large a Quantity as usual, in the Arteries which supply the Leg, because of their extreme Curvature, as I said just now, was oblig'd to stop at the Knee, in Consequence of which the Extremities of the Os Femoris and the Tibia having received a greater Abundance of Lymph, the same afforded a greater Quantity of nutritious Juice to those Parts of them which were most disposed to receive it.



It may be said, perhaps, that tho' there be no Room to doubt, that the Contraction of the Musculi Flexores of the Patient's Right Leg was the real Cause that held it thus bent, it is still uncertain whether that Contraction was the Consequence of a Convulsion of those Muscles, or of a Resolution of the Extensores of the same Part; that this last Disorder might equally make way for the Musculi Flexores of that Leg to bend it, and to keep it in that State of Flexion, as long as it subsisted; and that in this Case it might also have been cured by the Remedy which was used; and upon these Accounts, the Disease which I attribute to one Cause, might perhaps be imputed to another quite opposite.

I answer, that 'tis true a Member may as well be bent in Consequence of a Resolution of the Muscles which serve to extend it, as by a Convulsion of those which are appointed to bend it; that whether their own Force increases, or that of their Antagonists diminishes, they equally exert themselves beyond their just Bounds, and must by Consequence keep the Part bent, or inflected: But besides that we seldom or ever see a Delirium consequent upon a continual Fever attended with a Resolution, instead of which a Convulsion is the ordinary Symptom; I have observed this Difference betwixt a Member bent in Consequence of a Resolution of its Musculi Extensores, and a Member bent by a Convulsion of its Musculi Flexores; that in the first Case, a Force equal to that of the Musculi Extensores might perfectly extend the bended Part; that but a small Resistance is to be perceived from the Musculi Flexores, and that the Patient cannot in the least suffer from that Extension; but that, instead thereof, in the second Case, the greatest Force cannot altogether extend the bended Part, and that there is an invincible Resistance to be perceived on the Part of the Musculi Extensores, inasmuch that a Man would run the Risk of breaking or tearing them asunder, if he should endeavour with all his Force to extend them to their full Length; and in such a Case, the least Extension would put the Patient to great Pain.

Thus it happened exactly in the present Case: With all the Efforts which I made to stretch out the bended Leg, I came very short of extending it to the utmost, finding too much Resistance. 'Tis true, the Pains which the Patient felt on this Occasion, prevented me from using greater Force; and I have been told, that a Surgeon of an Hospital in that Country, having try'd to extend this Leg to its full Length by Strength, had employ'd two or three Men for that Purpose, and was not able to accomplish his Design, the Man having fallen into a Swoon, which lasted half a Quarter of an Hour.

These are the Reasons why I judged, that the Contraction of the Musculi Flexores of the Patient's Leg was not the Consequence of a Resolution of the Musculi Extensores.

The Result of this Observation is, that we ought not always to look upon those Symptoms as the Causes of a Disease, which, though they are often so, might yet, for all that, be sometimes the Consequences of it; and that in Distempers, even those belonging to Surgery, we are not always to rely on those Signs which are the most usual, and which appear the most natural, if possibly they may deceive us. Of this Nature was the Bigness of this Patient's Knee, the Pain which he felt, the Absence or Failure of a Tumour in the soft and fleshy Parts, the Impossibility he lay under of extending his Leg in the least. All this seem'd to indicate, and commonly shews, a Fault in the Bones, which gives Rise to all these Symptoms; but which were, for all that, the Effects of another Cause.

The Passion which some Surgeons in the Country have for Operations, makes them take all Opportunities of cutting off a Limb. Such may learn from the preceding Case, that it is never to be done rashly. Reason and Humanity should also inform them, that there is more Reputation and Satisfaction to be acquired by saving one, than amputating a thousand.

When an Ankylosis is perfectly form'd, that is, when the Bones are ossify'd together, it appears by the Nature of the Distemper, that the Case is incurable. But when the Stiffness is only caused by Humours inspissated in the Articulation, the Methods specify'd in the preceding History, and the two following Cases from *Le Dran*, seem to promise fair for a Cure, if duly perfitted in.

Hot Pumping is a Remedy very little used; whether it be for want of knowing its Advantages, or from the Difficulty of performing it properly, which has often rendered it unsuccessful. It is very beneficial, however, in many Cases, and especially in Ankylosis, before they arrive to a perfect Hardness. A Series of Time is required before it can produce any considerable Effect, and it must be often repeated, when it begins to operate, having frequently proved unsuccessful, for want of being long enough continued.

In the Month of *January* 1725. a Man aged twenty-one Years felt an acute Pain in his Left Groin, which subsisted in the same Place during the Space of a Fortnight, and then removed its Situation. It varied often, affecting the Thigh one time, and the Rotula another, and then returned to its first Point again. After he was bled and purged, they bathed the

Part with Lavender-water for above three Weeks. The Patient finding no Relief, but on the contrary, that his Leg and Thigh were emaciated, he declined the Use of it, and put himself under the Hands of several Empirics for near three Months, who robbed him of his Money, without doing any Service. These Gentlemen (according to themselves) have infallible Nostrums; but if they are so, it consists in draining the Patients Purses, who place a Confidence in them. The last Remedy he used was dry Baths, such as are performed with Spirit of Wine; which being attended with the same Success as the former, he applied himself to me.

When I first saw him, he could not move his Thigh without violent Pains, nor suffer the least Violence to be used in moving it; the superior Part, to the Spine of the Ilium, was so prodigiously swelled, as to be twice its ordinary Magnitude. It was exceedingly distended, and as hard as a Stone; the Pain was very deep, but not augmented when the Tumour was handled.

What increased the Bulk of the Thigh to that Extent in its superior Part, was, probably, a large Quantity of Lympha inspissated and filtrated in the Interstices of the Muscles; perhaps also the Capsula, embracing the Articulation, was filled with Sinovia, as well as the Cavitas Cotyloides. The Projection of the Trochanter Major externally afforded some Reason to believe, that the Thigh was luxated (This Sort of Luxation is often seen from an internal Cause, whereby the Head of the Femur is gradually thrust out of its Cavity). The internal Part of the Thigh was emaciated to such a Degree, that the Bone seemed to be covered only by the Skin, and might be embraced with one Hand. The Leg was emaciated also.

Seeing the Inutility of all the Remedies hitherto employ'd, I advised the Patient to go to *Bourbon* to try the Hot Pump, which he had not yet attempted. He told me the Impossibility there was of undertaking that Journey, both because his Circumstances could not afford it, neither would the Excess of his Pains suffer him to be moved. This gave me a Thought of erecting a Pump at my own House, which might, in some measure, answer the Use of the Hot Mineral Waters, and supply the want of them.

The Place being prepared with all necessary Conveniences, I put the Patient into *La Charité*, from whence I could remove him every Day to my House. I ordered him to be twice bled and purged, and the 12th of *August* began to pump upon him for the Space of an Hour; and when it was finished, he went to bed, where the whole Part affected was covered with Bladders, half filled with hot Water, to a supportable Degree. These Ladders were often renewed in the Space of two Hours, and when they were removed, the Part was suffered to perspire another Hour, covered only with warm Linen. Then the Patient was brought back to *La Charité*, where the Bladders were again renewed in the Evening.

When he had been pumped a few times, he began to lean upon his Leg with less Pain, but always by the Assistance of Crutches, and without any Motion in the Articulation.

The Part affected sweated considerably at each Pumping, and appeared much softer after it. The Patient had not used this Method above a dozen times, but the Swelling on the superior Part of the Thigh began visibly to diminish. Then I ordered the Motion of the Articulation to be gently forced, notwithstanding the Pain, tho' by Degrees, and a little at a time; moreover, I purged him twice. These Precautions, united with the Pumping, dissolved the Sinovia, so that the Patient could move his Thigh a little without any Assistance. In proportion as the Tumour diminished, the Leg and Thigh grew more fleshy; in short, within the Space of four Months, during which he was pumped between forty and fifty times, suffering him now-and-then to repose a Day or two, the Distemper so far yielded, that the Patient was able to walk very fast by the Help of a Cane only, feeling no more Pain, and having this Leg and Thigh answerable to the other.

In the Year 1728. a Gentleman, belonging to the King, had an inspissated Sinovia upon his Right Foot, which not only possessed the Articulation, but spread over the whole Foot, so that the Ankylosis was almost formed.

As he was ready to depart for *Bourbon*, to drink the Waters, by the Advice of Mr. *de la Peyronie*, they mentioned the Pump I had erected at my own House; and having view'd it, the Patient was prepossess'd in favour of the Effect it might produce, and deferr'd his Journey for several Days to experience it.

Twelve Pumpings, with the same Precautions observed in the preceding Case, so far cured him, that he laid the Thoughts of his Journey aside, and has felt nothing since.

## R E M A R K S.

We ought not to be surpris'd at the sudden Effect of Pumping, properly managed; three things act at the same time upon the stagnated and inspissated Fluids.

First, The falling of a Column of Water, of an Inch Diameter, from seven or eight Feet high, abrades and comminutes the inspissated Juices, by its Force and Compression.

Secondly,



Secondly, The Nature of the Water may contribute to produce this Effect, if the active Particles contained in it can be immitted into the Texture of the Part affected: And is there any thing that can sooner make it penetrate, than the precipitate Fall of a Column of Water upon it?

Thirdly, The Heat of the Water, which insinuates itself into the Part affected, and warms it to the very Bottom, assists and accelerates the progressive Motion of all the Fluids; perhaps even the intestine Motion of such as have not entirely lost it, and communicates a Motion to those that are stagnated.

From hence it follows, that one Part of the stagnated Fluid transpires externally, whilst another takes the Course of the Circulation; and thus the Part is gradually disengaged. It is true, indeed, that every Patient does not receive the same Relief; but if the Distemper begins to give way after a few Pumpings, the Number is not to be regarded. Several Persons who have reap'd no Benefit from the Pumps at *Bourbon*, and other Places, have return'd unrelieved, for want of using it often enough, independent of other Obstacles opposing the Cure. So far *Le Dran*.

I must not dismiss this Article without observing, that though Ancyle, or Ancylosis, are usually taken for a Union of the Bones at the Joint in general; yet Ancyle, or Ancylosis, properly imports a Stiffness of the Joint, when the Part is fix'd in a bended Position; whereas when it is strait, the Disorder is call'd Orthocolon, ὀρθόκωλον.

ANCYLIDOTON, ἀγκυλιδόσιον. The Word is used by *Hippocrates*, and signifies, according to *Galen's* Interpretation, ἀγκύλην ἐχούσα, Things that have a Handle.

ANCYLOBLEPHARON, from ἀγκύλα, bent, and βλέφαρον, an Eye-lid. A Disease of the Eye, which closes up the Eye-lids.

Sometimes there is a Coalition of the Eye-lids, so that the Eye cannot be opened; and, what is an usual Accessory to the Disease, a Cohesion of the Eye-lids with the White of the Eye, which is owing to Carelessness in the Cure of an Ulcer affecting either of the Parts; for, as the Sore heals, what might and ought to be separated, will, if neglected, be glued together. The *Greeks* call both Affections ἀγκυλοβλέφαρον.

When there is only a Cohesion of the Eye-lids, they may be easily separated, tho' sometimes to no Purpose, for they will unite afresh; however, we ought to try, because it often succeeds. Introduce therefore the Specillum, with the blunt Side towards the Eye; and with it separate the Eye-lids; after which lay some small Pledgets between them, till the exulcerated Place be heal'd.

But when there is an Adhesion of the Eye-lid to the very White of the Eye, *Heracides the Tarentine* advises cutting at the inferior Part of the Adhesion, the sharp Edge of the Knife being turn'd upwards; but with great Tenderness, that we may avoid cutting off any thing from the Eye or Eye-lid; but, if necessary, let it be rather from the Eye-lid. After this, the Eye must be anointed with Medicines proper to cure Asperities, and the Eye-lid must be turn'd up every Day, not only that the Medicine may have Access to the Ulcer, but also that it may not again adhere; and the Patient himself must be charg'd to raise it often with his two Fingers. I don't remember, that ever any one, by this Method, recover'd; and *Meget*, in his Writings, owns, that he had try'd many things, but never once succeeded, because the Eye-lid always stuck to the Eye afresh. *Celsus*; Lib. 7. Cap. 7.

The upper Eye-lid sometimes grows to the lower, sometimes to the *Tunica Adnata*, and sometimes to the *Cornea*. This Disease is an Impediment to the Function of the Eye.

In this Case the Coalition must be dissolved, either by passing a Probe under the whole Eye-lid, or by first distending it with a Hook; and then using the Pterygotomus; taking care not to wound the *Cornea*, lest it should occasion a Falling out of the Sight.

After the Section, and Infusions into the Eye, the Eye-lids are kept asunder by the Interposition of Lint, lest they should grow together again; then we apply Wool moisten'd with an Egg [ωββαχχί]; and, after the third Day, carry on the Cure with attenuating and cicatrizing Collyriums. *P. Aeginet. Lib. 6. Cap. 15.*

When there is a Coalition of the Eye-lids, either with one another, or with the Eye itself, whatever be the Cause, it is call'd an *Ancyloblepharon*; and is easily distinguish'd from that Distemper of the Eyes, when, by the Intervention of some glutinous Matter, as it often happens in the Small-pox, and an Ophthalmia, they cohere or are glued together for a Time only, without a true Coalition.

Sometimes the Eye-lids unite so closely, that the Eye can by no means be open'd (see *Tab. 36. Fig. 23. A. A.*); and sometimes one, sometimes both Eyes labour under this Disorder; sometimes again the Eye-lids cohere with the Eye, either by the White of the Eye, or the *Cornea Tunica*, in a closer or looser manner, according to the Number of Fibres between which there is a Coalition. Affections of this Kind usually hap-

pen whenever the Eyes, or Eye-lids, have been injur'd by the Small-pox, or some violent Inflammation, or an Ambustion, especially with Gun-powder; or, in short, by any other Exulceration whatsoever. 'Tis also no unusual thing for Infants to be born with this Defect, or for adult Persons to contract the same, as when, by means of a preternatural Excrecence of Flesh in either Canthus, the Eye-lids grow together, of which I have seen an Example.

Tho' this be, for the most part, a dubious and dangerous Disease, yet it is never more so, than when there is a Cohesion of the Eye-lids with the *Cornea*; for, in this Case, the Patient is seldom or never cur'd without the total Loss, or great Diminution of Sight. But the Eye and Eye-lids are separated with the greatest Difficulty, when the Disease is caused by an Ambustion; wherefore it is much the best way to be diligent in making Injections of moistening and mollifying Medicines into the Eyes, to preserve them always moist and moveable, and to prevent the inflamed Parts from being glued together. But when there happens a Coalition of the Eye-lids from the Small-pox, they usually also grow to the Eye, and especially to the *Cornea*, from which they cannot easily be separated without very great Damage to the Eye; for, however circumspectly and nicely they are divided, there will always remain some Spots and Cicatrices in the *Cornea Tunica*, which are a great Impediment to Vision, and are seldom or never removed.

From the Premises we may infer, that the principal Part of the Cure consists in separating, by the Help of a ready and expert Hand, the conglutinated Parts. For this Purpose let the Patient be placed in Bed, or in a Chair, in such a Position as may be most convenient for taking a full View of the Eye, and for the commodious Access of the Surgeon. This done, the Surgeon is, first of all, to examine whether the Eye-lids be quite closed up, or whether there be any small Interstice to be met with any-where between them; which, if there be any, is commonly found in the great Canthus, or Corner of the Eye nearest to the Nose. If there be a perfect Coalition of the Eye-lids, a small Perforation is to be made in either Canthus, as shall be most convenient; in performing which, the Hand is to be conducted with the greatest Care and Nicety, for fear of hurting the Eye, and especially the *Cornea*. Into this Perforation is to be introduced one Arm of a fine Pair of Scissars, or a crooked small Knife, arm'd with a Button at Top, by the nice and even Management of which the Eye-lids are to be separated from each other. If the Eye-lids are not perfectly united, there is no Necessity of making a new Perforation; but the Instruments before-mention'd are immediately to be introduced, and the Eye-lids disunited in manner aforesaid. But if the Surgeon should not happen to be furnish'd with this Instrument, or Knife arm'd with a Button, to prevent, however, the Eye from being touch'd or injur'd by the Scissars, or sharp Lancet, it will be proper first to introduce a fine Probe with a Groove (see *Tab. 36. Fig. 24.*); and then, by another fine Instrument, as a Pair of Scissars, or Lancet used for Incision or Bleeding, with all imaginable Care to disjoin the Eye-lids from one another.

This done, we are to inspect very narrowly, and examine with the Probe, whether the Eye-lids adhere to the Eye: If this be the Case, we are to proceed with severing them; by cutting with the greatest Caution; or, if they stick to the Pupil by only a few Fibres, the Separation is to be effected by a Knife arm'd with a Button, or a Lancet blunt at the Point. If there be a perfect Coalition of the Eye-lids with the Eye, or at least with a great Part of it, this Operation by Section is usually not only troublesome, but extremely dangerous; for the Eye-lids can hardly be loosen'd from the *Cornea*, without damaging both it and the Sight, as before observed: But if the Coalition is only between the Eye-lids and the White of the Eye, their Division is much easier to be accomplish'd, without Danger of Blindness; for a Hurt done to the White of the Eye is of so small Moment, that I dare maintain, that if an Abscession from one or other of the Parts be unavoidable, it is better to cut off something from that white Tunic, than from the inner Membrane of the Eye-lids; because by injuring this Membrane, the Duets of the Lachrymal Glands are at the same time very liable to be destroy'd, which would be of very bad Consequence. Hence appears the Necessity of a skilful and well-exercis'd, as well as steady, Hand in this Operation, that the Eye may receive no Damage.

But in order to prevent the separated Eye-lids from a fresh Cohesion, which usually happens, if not prevented by Art, there is no better way than to interpose between them a very thin Slip of the finest Leather, a Bit of Linen, or Gold-beater's Leaf, or Wax, or a thin Plate of Lead, in the Form of a Half-moon; or of an artificial Eye, and anointed with Oil of Almonds, or some such Oil; or else put some Lint between them. And whatever is thus interposed, must there remain for some Days, or till the Danger of a new Coalition is over; or if any thing happens to fall off, or is voluntarily taken off for some particular Reason, it must immediately be replaced. If any Person, as is sometimes the Case, cannot bear to have any thing of this Nature interposed, then, in order to prevent, as much as possi-



ble, a new Coalition, a Collyrium, compounded of Plantain-water, Tutty, and Sugar of Lead, is to be often instill'd into the Eye; or a Powder prepar'd of Sugar, Pearls, and Crabs-eyes, from time to time sprinkled on the Place. The Patients also are to be charg'd gently to rub and stroke their Eye-lids, and to lift them up with their Hands. In short, the Surgeon himself must, now-and-then, introduce a blunt Probe between the Eye and its Lids, for the more easy Prevention of a new Agglutination.

When by means of the Small-pox, or an Inflammation of the Eyes, as it often happens, the Eye-lids stick together during Sleep, thro' the Intervention of some viscid Humours, or glutinous Matter, so that the Eye cannot be opened, nor the Patient have the Use of Sight; in this Case, the Eyes are never to be open'd by Force, but the Humours are rather to be mollify'd by Injection or Infillation, or frequent washing the Parts with warm Milk, by the Use of which the Patients are usually enabled, in a short time, to open their Eyes, and to see again. *Heister.*

ANCYLOGLOSSUM, a Contraction of the Ligaments of the Tongue, hindering Speech. From *αγκύλωσ*, crooked, and *γλῶσσα*, the Tongue.

Some are Ancyloglossi [Crooked-tongued] from the Birth, others from a Disease. The former are such as have the lower Membrane, which support the Tongue, form'd imperfect, or of too hard a Substance, by Nature; the latter are those who are affected with an Incision of the Tongue, occasion'd by a preceding Ulcer, and a hard Cicatrix left under the Tongue; these speak with Difficulty, on which account they are call'd by the *Greeks* *μυχαῖοι*. The Ancyloglossi by Nature are late before they come to their Speech; but after they have begun to speak, they utter their Words without Impediment, and fast enough, yet hesitate in pronouncing Words which are difficult of Pronunciation in other respects, as are those which have R, L, or K, repeated once or oftener. Ancyloglossi ought to be cured only by manual Operation, under the Hands of a Surgeon.

To perform this in a convenient Manner, the Patient must seat himself, and raise his Tongue to the Palate; then, if the Cause of the Incision lies in the Membranes themselves, the Surgeon take hold of them with his Hook, extends them, and cuts them off, taking care that he does not, at the same time, cut the subjacent Veins. But if a Cicatrix be the Cause of the Curvature, it is in like manner taken up with the Hook, extended, and whatever is hard, and not of a Piece with the natural Flesh, is cut off. After the Operation the Mouth is to be wash'd with cold Water, or Posca, and then the Wound is to be sprinkled with Powder of Frankincense, and Lint must be apply'd to the Place. On the Days following the Sore is to be wash'd with Hydromel, and anointed with *Egyptian* Ointment, and Lint is to be laid thereon, in order to keep the Sides of the Wound separate, that the same may not be form'd again. *Actus, Tetr. 2. Scem. 4. Cap. 36. Paulus Aegineta, Lib. 6. Cap. 39.*

That Operation by which the Membrane under the Tongue, commonly call'd the Frenulum by Physicians, is divided or cut, is styl'd *untying the Tongue*. This Operation is most generally perform'd upon Infants, and that with two different Intentions: First, in very tender Infants, when the fore Part of their Tongues, from the Moment of their Birth, is so closely join'd to the subjacent Parts, by means of this Membrane, that they cannot move their Tongues sufficiently, or thrust them so far out of their Mouths as to be able to suck. This Operation is also perform'd on Children somewhat farther advanced, when, by this Membrane's being too freight or short, they cannot pronounce articulately at an Age when it might be expected of them. For both these Reasons, this Operation is absolutely necessary; but it must be remember'd, that it is not to be perform'd promiscuously, and at random, upon all new-born Children, as most Midwives, Women, and even some Men, idly imagine. We have Reason rather to assert, that it is scarce necessary in one of a thousand Infants; for Experience has shew'd both myself and a great many more skillful Physicians, that this Case occurs far less frequently than Hare-lips; for when a Child can thrust its Tongue without its Lips, there is nothing amiss about the Frenulum; and it will learn, in Process of Time, both to suck and speak, unless there be some other Defect in the Organs necessary for these Purposes. On the other hand, if the Infant can scarce move its Tongue, and cannot thrust it beyond its Teeth; or if, in some other respect, this Membrane should fetter the Tongue, then a skillful Incision becomes very proper: But because this Operation is not to be rashly perform'd, lest, as has frequently been the Case, the most terrible Evils, and sometimes Death itself, should ensue, it will not be amiss to direct to the safest and most accurate Method of performing it.

The Point of the Tongue, then, ought to be a little elevated with the Left Hand, using either a Linen Cloth, that it may not slip thro' the Fingers, (see *Tab. 42. Fig. 1.*) or even with a small Fork made for that Purpose (see *Tab. 42. Fig. 2. 3.* and *Tab. 22. O. and P.*); then as much of the Frenulum, as is necessary for Speech and Sucking, is to be cut with blunt-

pointed Scissars, (see *Tab. 22. C.*) or an Incision-knife, betwixt the *Venæ Raninæ* and the lower Salivary Duets: But this is to be done with a great deal of Caution, lest either the Salivary Duets, the *Venæ Raninæ*, or the Nerves of the Tongue, should happen to be cut at the same time; for when these are injur'd, very terrible Consequences ensue. Thus *Dionis*, in his Surgery, makes mention of an Infant, who by an excessive Hæmorrhage, in consequence of the *Venæ Raninæ* being cut, died very soon after the Operation. But if a Vein should be unluckily cut, which may very readily happen in a Frenulum that is too thick and short, a Compress, soak'd in Vinegar, is to be held a little while under the Tongue, till the Blood stops; but if, at the first Incision, the Tongue is not sufficiently untied, a few Days, or even a few Weeks after, as Circumstances shall require, the remaining Part of the Frenulum is very cautiously to be cut with Scissars, or an Incision-knife: Then, after the Operation is over, the Finger dipp'd in Honey of Roses, or Syrup of Violets, is very frequently to be rubb'd up and down under the Tongue, and the Wound is to be anointed with it, lest the cut Frenulum should again unite.

From what has been said it appears, that Disorders of this Nature are not only less frequent, but of more difficult and hazardous Cure, than is generally thought. Upon this Account, those Midwives are miserably mistaken, who, concluding with the ignorant Multitude, that no Infant is born without this Defect, thrust their whole Fingers into the Infant's Mouth, and with their Nails destroy the Frenulum; for it must necessarily happen, that such a rash and fool-hardy Laceration, by their Nails, must bring an Inflammation of that Membrane, Convulsions, and often the Death of the little Patient: For this Reason, Midwives and foolish Women are not only to be caution'd against such Practices, but *Hillanus* is to be carefully consulted; for he (in *Cent. 3. Obs. 28.*) hath very accurately laid down not only the Nature and Cure of the Disorder itself, but also the several bad Consequences that possibly may, and generally do, ensue from performing this Operation at an unseasonable Time, or in an incautious Manner. But when the cutting this Frenulum is absolutely necessary, it may be done much more safely, and with much less Pain to the Patient, by the Scissars refer'd to, than by the long Nails of a simple old Woman. *Heister.*

There is no Operation belonging to a Surgeon, which is commonly esteem'd of so slight Moment as cutting the Ligament under the Tongue, the Care of which is commonly committed to Midwives, who use to break it off with their Fingers. Now this I cannot but disapprove, because they very often lacerate and break the adjacent Parts, so as to occasion a Pain and Inflammation, which hinder the Child from Sucking; whence he grows froward, lean, and weak. We ought therefore to act with Prudence in this Operation, and not think too slightly of it, tho' it seems to be the least in which we are concern'd: In the first Place, we ought to examine, whether the Ancyloglossis really wants the Operation; for Children are often incapable of uttering an articulate Voice, from some other Cause than the Ligament under the Tongue, being not really Tongue-tied; and in such Subjects a Section would be dangerous, as will appear from the following Example:

A Peasant of my Neighbourhood, in the Village of *Corfellis*, named *Petit Yous*, in *May* 1608. brought his Son, two Years old, to my House, to have his Tongue untied; for the Parents were thoroughly persuaded, that if the Ligament was cut, the Tongue would perform its Office, and the Child would speak in a short time. But when the Mouth was open'd, and the Tongue, which was very thick, was raised, no nervous Ligament appear'd; therefore I sent back the Parent with the Child, without doing any thing. A Month after came about a Circumforaneous Empiric, or Mountebank, who had the Child brought to him: He persuaded his Parents, that his Tongue was ty'd by a very hard nervous Ligament; and had the Impudence to affirm, that for a Sum of ready Money he could easily bring the Child to speak in a short time. He receives the Money, the Child is placed in a Woman's Lap, and the Impostor goes to work; in which, as I was told by some who stood by, he separated the Tongue both before and on both Sides to a great Depth from its Basis. The Consequence was, that the Boy, who before could go upright, on that very Moment sending forth a most loud and bitter Cry, was seiz'd with a Convulsion, so that his Knees were drawn up towards his Groin, and his Arms towards his Breast. On *July* 18. next, I visited this Child, and found that he could not speak a Word, and that his Legs and Arms were still contracted, and, when extended by Force, still fell back into their former Posture; his Tongue was thick, and his Head, and all Parts of his Body, of a phlegmatic Constitution.

I had a Brother, by the Mother's Side, who was very sickly when a Child, and, amongst other Disorders, could not speak a Word till he was three Years old. As I lived with a Surgeon, and exercised the Operation of cutting this Ligament almost every Day, I had once a Fancy, when I visited my Father's House, to inspect my Brother's Tongue. I found it tied and bridled



bridled with a gross thick Ligament in such a manner, that he could hardly put it out to his Fore-teeth: I cut it as well as I could, and for some Days after anointed the Place three or four times a Day with Honey of Roses. Two Months after the Abscission I found the Ligament in some measure renew'd, so that I was oblig'd to use the same Means as before; which, by the Divine Blessing, happily succeeded; for the Boy began to speak in a short time, and has ever since continued to speak as well and articulately as any Man.

This Operation is void of all Danger, if it be rightly perform'd. We are principally to take care, that we do not cut too deep: My way is to raise the Tongue, and cut the Ligament commonly in two, and sometimes in three Places; by which means it is more difficult for it to grow together again, than if the Incision had been only made in one Place. I cut only what is nervous, scarce touching the Flesh; and if it be not cut enough the first Time; or if it grows together again, the same Operation may be renew'd. When the Ligament is cut, I order the Nurse to raise the Tongue very often, and gently, with her Finger anointed with Honey of Roses, or common Honey, which is the way to prevent an Agglutination. *Hildanus, Cent. 3. Obs. 28.*

ANCYLOMELE, Ἀγκυλομήλη, from ἀγκύλη, crooked, and μέλη, a Probe. A Surgeon's crooked Probe; or, a Probe with a Hook.

ANCYLOSIS. The same as ANCYLE, which see.

ANCYLOTOMUS, ANCYLOTOMUM, Ἀγκυλοτόμος, Ἀγκυλοτόμην, from ἀγκύλη, crooked, and τέμνω, to cut. A crooked Knife to cut the Ligament of the Tongue. It is also used, as by *P. Aegineta*, to signify any crooked Knife in general.

ANCYRA, Ἀγκύρα, an Anchor, a Hook. See UNCUS.

ANCYROIDES PROCESSUS, a Process from the upper Part of the Neck of the Scapula, or Shoulder-blade, resembling an Anchor, whence it takes its Name. It is also called *Coracoides*, and *Sigmoides*, from representing, in some measure, a Crow's Bill, and the Letter Sigma. *Rufus Ephesus.*

ANCYROMELE, the same as ANCYLOMELE. *Galen* explains it ἀγκύριον, a Surgeon's Hook.

ANDA, *G. Pison.* is a Tree of *Brasil*, the Wood of which is spongy and light; the Leaf longish, fibrous, and pointed; the Flower large and yellow, and the Fruit a grey Nut, which incloses, under a double Rind, two Kernels, of the Taste of Chestnuts.

The Fruit is said to be Purgative, and a little Emetic: Two or three of the Kernel are a Dose. They extract Oil by Expression from these Kernels, with which they anoint their Limbs.

The Rinds of the Fruit are esteemed proper to stop a Looseness. Thrown into Ponds, they kill the Fish. *Lemery de Drogues.*

ANDARAC, red Orpiment. *Rul. Johns.*

ANDAS, a Solution of Salt, or Salt resolved. *Paracelsus.*

ANDENA, Steel imported from the Eastern Countries, which melts in the Fire, and takes any Form. *Rul. Johns.*

ANDIRA, or, ANGELYN, *G. Pison.* a Tree in *Brasil*, the Wood of which is hard, and proper for Building: Its Bark is of an ash Colour: Its Leaves resemble those of the Laurel, but are less: It produces blackish Buds, from whence proceed many Tufts of Flowers, which are fragrant, and of a fine purplish and blue Colour: Its Fruit is of the Shape and Size of an Egg, green at first, but grows blacker by Degrees; has, as it were, a Seam running down one of its Sides, and is of a very bitter Taste. It is cover'd with a hard Rind, inclosing a Grain, or yellowish Kernel, of a bitterish, and somewhat astringent Taste.

They pulverize this Nut, and give it for the Worms; but the Quantity must not be above one Scruple; for more than this, they say, turns to Poison.

The Bark, Wood, and Fruit of this Tree are as bitter as Aloes, in which it differs from another ANDIRA, which resembles it in every thing, except the Taste, which is insipid. The wild Beasts eat of this Fruit, and it fattens them. *Lemery de Drogues.*

ANDIRA, is also an Animal call'd *Andira guacu*; a kind of Bat in *Brasil*, the largest of which are as big as our Pigeons: They call them Horned Bats, because of a sort of Excrecence or pliant Body above their Beak: Their Wings are longer than half a Foot; they are of an ash Colour, have large Ears, and white Teeth; each Foot hath five Toes armed with sharp Claws. They persecute all Sorts of Animals, and suck their Blood. Some of these are very dangerous; for they get into Beds in the Night, and so subtilly open the Veins in the Feet of those who are in Bed, that they are no sooner perceived than by the Blood that flows in the Bed, which it is a difficult Matter to stop. The Inhabitants of that Country reckon the Tongue and Heart of that Animal amongst Poisons. *Lemery de Drogues.*

ANDRACHNE. Among the homonymous Words of the *Materia Medica*, which are very numerous, is Ἀνδράχνη, An-

drachne, which signifies a Tree like the Strawberry-tree, and also the Herb *Portulaca*, Purslain. In vain does *Pliny* distinguish here between the Herb and the Tree, by changing one Letter; as if the Tree were called Ἀνδράχνη, *Andrachne* [*Pliny, Edit. Santandreaus, 1582, distinguishes the Tree by leaving out a Letter, that is, the first n, calling it Adrachne*]; for this *Attic* Name belongs as well to the Herb as the Tree, the *Attics* usually saying *Andrachne*, instead of *Andrachne*, which is the common Word; just as they say λίτρον, Litron, for what others call νίτρον. No less mistaken is *Galen*, when he labours at making a nominal Distinction of Ἀφρόνιτρον, and Ἀφρόλιτρον, Aphronitron, and Aphrolitron.

Andrachne, is the Herb in Latin call'd *Portulaca*, or *Portulaca*, quasi a *Porcis*, "as taking its Name from Swine; and hence the later Greeks have call'd it χοιροβίτανον, Hogwort." We [the French] commonly call it *Pourpier*, when we should say *Poulpiet*, quasi *Pulli Pes*, Fowl's Foot; for so it was call'd by the *Latins* of the latest Ages. The spurious *Alacer de Herbis*,

*Andrachne Græcis, quæ Portulaca Latinis  
Dicitur, hæc vulgi Pes Pulli more vocatur.*

Many other Herbs have Names of the like Kind imposed upon them; as *Pes Alaudæ*, *Pes Corvinus*, *Pes Columbinus*; Lark's-foot, Crow-foot, Dove's-foot, &c. *Salmaf. de Homonym. Hyl. latr. Cap. 1.* See PORTULACA.

ANDRANATOMIE, or, ANDROTOME, Ἀνδρανάτομη, or Ἀνδρετομή, from ἀνὴρ, a Man, and τέμνω, to cut. The Dissection of a human Body, especially of a Male. *Castellus* from *Marc. Aurel. Severini* *Totome Democrit.*

ANDRAPHAXIS, or, ANDRAPHAX, Ἀνδράφαξις, Ἀνδράφας, in *Hippocr. περί γυναικ.* signify the same as Atriplex. Ἀνδράφας, flinking Arrach. *Fasf. Orcon. Hippoc.*

ANDRAPODOCAPELOI, Ἀνδραποδοκάπηλοι, from ἀνδράποδος, a Slave, and κάπηλος, a Dealer; and Ἀνδρεκάπηλοι. These were a certain Species of Brokers, mentioned in many Passages of *Galen*. Those People were in antient Times so call'd, who kept Boys, Girls, Slaves, Eunuchs, and other Men for Sale; not for the Purposes of Lust, as Pimps did, but on other Accounts. These People, that they might render their Commodities the more saleable, apply'd themselves carefully to beautify the Bodies of those they were to dispose of: Hence we read in *Galen*, that they us'd to wash the Faces of their Boys with strain'd Ptisan, Bean-meal, and sometimes with Nitre, in order to render their Countenances more beautiful and sparkling; that they sometimes lashed the Hips of those which were emaciated, with Rods, and anointed them, that their Bodies might appear fuller and better shap'd; that they brac'd up the Ribs of their Girls with strong Rulers, that their Breasts might appear full, and that the Breadth and Fulness of their Haunches, commonly esteemed an Ornament to a Woman, might be set off to the greater Advantage; and that they sometimes pull'd off, in different Ways, the Hairs growing on their Cheeks, and other Parts of their Bodies, that they might appear more beautiful and young. The *Roman* Ediles enacted a Law, that they should affix certain Titles to their Slaves design'd for Sale, expressive of the Diseases they labour'd under, or the Vices they were addicted to; that the Faulty, in any of these respects, might be return'd to their proper *Andrapodocapelos*.

ANDREAS, an antient Physician, mention'd by *Celsus* in the Preface to his fifth Book. This Gentleman, with *Zeno*, and *Apollonius*, surnamed *Mys*, left behind them whole Volumes on the Virtues of purging Medicines. Great Part of these Remedies were neglected, and brought into Disuse, by *Aesclepiades*, and not without Reason, as *Celsus* says; for since almost all Cathartics are of bad Juice, and hurtful to the Stomach, this Physician turn'd all his Studies to that Part of Medicine which cures by Regimen.

ANDREÆ COLLYRIUM, the Collyrium of Andreas, with which the Forehead is to be anointed in an Inflammation of the Eyes, is thus prepared:

Take Gum Arabic, one Dram two Grains and a half; Cerufs, Antimony, each two Drams five Grains; Litharge boil'd and wash'd, four Drams ten Grains. The Litharge must be boil'd in Rain-water, and the dry Ingredients bruised with the Juice of Myrtle. *Celsus, Lib. 6. Cap. 6.*

ANDREÆ MALAGMA, the Malagma of ANDREAS, for Pains in the Side.

Take of Wax, one Ounce three Drams twenty-seven Grains; Mistle, Tears of the Sycamore-tree, each one Dram two Grains and an half; Pepper round and long, Gum Ammoniac, Bdellium, Myrian Orris, Cardamoms, Amomum, Xylobalsamum, Male Frankincense, Myrrh, dry Rosin, each one Ounce two Drams twenty-five Grains; Pellitory of Spain, Indian Grains, Aphronitron, Sal Ammoniac, Cretan Birthwort, Root of wild Cucumber, Resin of liquid Turpentine, each two Ounces four Drams fifty Grains: To these must be



be added as much Unguentum Iridum, as will serve to mollify and make them of a proper Consistence.

This Medicine resolves, draws out a Humour, ripens Pus, breaks the Skin, and cicatrizes. It is proper to be apply'd to small and great Abscesses, and to the Joints, and is therefore good for the Gout and Sciatica. It is good for an inward Bruise, and mollifies Hardnesses and Inflexions in the Region of the Stomach, extracts Bones, and, in short, is good in all Cases where Heat can be of Service. *Celsus, Lib. 5. Cap. 18.*

ANDRIA, Ἀνδρεία, from ἀνής, a Man. An Hermaphroditical Woman, who has the Parts of both Sexes.

ANDRIUS, Ἀνδρεῖος, manly, metaphorically apply'd to strong generous Wine. Ἀνδρεῖος δίνος in *Hippocrates*, according to *Erotian*, either signifies generous Wine, or Wine from the Island of *Andros*.

ANDROGENIA, Ἀνδρογένεια, from ἀνής, a Man, and γένειν, to generate. This Word in *Hippocrates*, according to *Galen's* Exposition, signifies a Succession of Males, or a Propagation of the Male Sex.

ANDROGYNI, Ἀνδρόγυνος, from ἀνής, a Man, and γυνή, a Woman. Effeminate Men, in Opposition to Andrii, ἀνδρεῖοι, manly. *Hippoc. περὶ διατρ. Lib. 1.* The Word is also used to signify Hermaphrodites.

ANDROMACHUS. *Andromachus* the Elder was a Native of *Crete*, and lived under the Reign of *Nero*, as we may conclude from his Poem upon the *Theriaca*, dedicated to that Emperor. *Galen* also observes, that *Andromachus* liv'd after *Menecrates*, who liv'd under *Tiberius* and *Claudius*, and before *Crito*, who flourish'd under *Trajan*. We know nothing concerning this Physician's Sentiments, or the Method of his proceeding in the Cure of Diseases: The only Remains we have of his are a great many Descriptions of compound Medicines, which were partly of his own Invention. *Galen*, who took the Pains to transmit these Descriptions to Posterity, places *Andromachus* among those Authors who have wrote best upon Medicines; but blames him for having given the Descriptions of them, without specifying their Properties and Virtues; and without having pointed out, except very rarely, those Diseases they were calculated to subdue or remove. The most famous of all the Compositions, either invented or described by this Physician, is the *Antidote* which he distinguished by the Epithet γαλίην, that is, *Calm*; or, rather, according to the Idiom of our Language, *Calm-procuring*; but this Medicine came afterwards to be called *Theriaca*. *Andromachus* wrote a Greek Poem in Elegiac Verse, which he dedicated to *Nero*, and which is extant to this very Day. In this Work he teaches the Manner of preparing his Antidote; and specifies the particular Disorder for which it is proper. He chose to give this Description in Verse, rather than in Prose, that Alterations might not be easily made in it without being discover'd. At least *Galen* is of this Opinion, and approves of the Conduct of *Andromachus* in this Particular.

Till that Time the Antidote of *Mithridates* was the only Medicine used by every body; but when that of *Andromachus* came to be known, the former was laid aside as useless, tho', to speak the Truth, the latter was no more than an Imitation of it; since the only essential Difference between them consisted almost in nothing else than the Addition of the Vipers as an Ingredient into the *Theriaca*. Notwithstanding this, the Antidote of *Andromachus* was so highly esteemed at *Rome*, that some Emperors would have it made up in their own Palaces; and took particular Care to have all the Ingredients brought from the Places where they were produced, on purpose. The Emperor *Antoninus* used the Bulk of a Bean of it every Morning fasting, and its Reputation was now so effectually established, that several Physicians endeavour'd, but in vain, to alter it, and compose new *Theriacas* in their own Manner: But the *Theriaca* of *Andromachus* retained its Character in spite of all the Efforts they could make; and what is still more surprising is, that tho' a great many Faults or Superfluities have long ago been observ'd in its Composition, yet, to this very Day, the most considerable Towns in *Europe* religiously follow the Directions of *Andromachus*, in their Method of preparing it.

This Direction comprehends above sixty Ingredients, most Part of which are Aromatics, except some common Simples, Gums, and inspissated Juices, the most considerable of which is Opium. But the Vipers are the Ingredients from which this Medicine receiv'd the Name *Theriaca*; for the Word *Θερίον*, among the *Greeks*, imported all Kinds of fierce Animals, but more particularly such as were esteemed venomous. Before the Vipers were used as an Ingredient in the *Theriaca*, they were thus prepared: After their Heads and Tails were cut off, they were skinn'd, their Entrails taken out, and their Flesh separated from their Bones: Then the Flesh was wash'd, boil'd in Water with Dill and Salt, and kneaded with Crumbs of Bread into such a Consistence, as that the Whole might be form'd into Troches, or little Cakes.

If the Antidote of *Andromachus* was possess'd of the wonderful Qualities ascribed to it by its Inventor, we should scarcely have Occasion for any other Remedy; for he prescribes it against Poisons and Venoms of all Kinds, and pronounces it a Remedy for Pains and Weakness of the Stomach; for Asthmas, and Difficulty of Breathing; for beginning Consumptions, Empyemas, Colics, Jaundice, Dropsies, Weakness of Sight, Convulsions, Ulcers of the Bladder, Venereal Impotence, Pains of the Kidneys, and even of the Plague itself.

*Andromachus* the Son, who reduced the Father's Verse to Prose, asserts, in so many Words, that the Antidote called *Theriaca* was excellent in all Indispositions of Body, proceeding from internal Causes, and especially for Disorders of the Stomach, for Poisons, and for intermitting Fevers.

Both Father and Son talk'd of their Antidote in this romantic Strain. But before we go farther, we must make a particular Inquiry into the Time when, and the Manner how, these Compositions came to be used, and what it was that People meant by an Antidote. *Hippocrates*, and the most ancient Physicians, seem to have founded the principal Maxims of their Practice upon the Observation of the several Motions of Nature in particular Distempers; and almost the Whole of their Method of Cure consisted in Diet, that is, in giving proper Rules relating to the Regimen of the Patients. *Herophilus* and his Followers were the first who made any considerable Use of Medicines, or who began to repose a greater Confidence in their Efficacy, than the Physicians who went before them. *Hippocrates*, it must be owned, made use of them sometimes, but very rarely, and even those he prescribed were of the most simple Kind. This Practice was not imitated by the Abettors of *Herophilus*, nor even by some Physicians, who liv'd a little before his Time; witness the Complaint which *Erasistratus* his Contemporary made against those who compos'd *Royal Compositions and Antidotes*, which they styled the *Hands of the Gods*. In these there were Ingredients drawn from Plants, from Animals and Minerals; from the Earth, and from the Sea.

But, compound as these Antidotes were, of which *Erasistratus* complains, 'tis probable that they were not so faulty, in that respect, as those which were afterwards made; and that before the Antidote ascribed to *Mithridates*, the shortest Receipt of which contains thirty-six Ingredients, so compound Preparations had not been seen. There was also another Antidote much more simple, the Receipt of which was found in the Closet of *Mithridates*, after he was routed by *Pompey*. We don't know at what particular Time this second Receipt or Prescription was made public, but 'tis probable it was so, very soon after the first, whether it actually had *Andromachus* for its Author, or only usher'd itself into the World, under the Sanction of his Name. Be this as it will, *Celsus*, who probably liv'd about an hundred Years after *Mithridates*, has describ'd the *Mithridate*, upon the Model of which the *Theriaca*, and all the other Medicines, consisting of a great Number of Ingredients, were made.

It may be said, in Defence of these Compositions, that Experiments upon Simples being daily multiplied, Physicians imagined, that the more of these Simples of similar Qualities were crowded into a Composition, the more likely it was to answer the End intended by it. It is also possible, that, as their Knowledge, both of the Qualities of Simples, and the Natures of Diseases, was very imperfect, they might imagine, that by mixing a great many Drugs together, they could produce Effects which one could not, since the Medicine is often wiser than the Physician who prescribes it. But *Pliny*, and a great many others after him, have imagin'd, that they crowded such a Number of Simples into their Compositions, only *ad Ostentationem Artis*, rather to make People believe, that there was more of Art and Mystery in their Profession, than from a Persuasion that such a Farrago was of any real Use in the Cure of Diseases.

The same Author, reflecting upon the *Mithridate* having fifty-four Simples in its Composition, and upon the small Quantity of each Ingredient that must consequently be taken at a Dose, is so provok'd against this Abuse, that he openly declares his Surprise, that Men should be capable of so glaring and bare-fac'd a Piece of Imposture. He puts the *Theriaca* upon the same footing, and says, that the *Theriaca* was invented for the sake of Delicacy or Sensuality; that it is composed of Ingredients produced in Foreign Countries; and that there were every-where Numbers of simple Medicines capable of answering the same Purposes equally well. Here he must certainly mean the *Theriaca* of *Andromachus*; for what he says with regard to the Foreign Ingredients, cannot be apply'd to that other Sort of *Theriaca*, which he elsewhere describes, [Lib. 20. Cap. 24.] and which, he says, consists only of a very small Number of common Simples. Hence we may infer, that the Antidote of *Andromachus*, which was called *Galene* by its Author, had the Name of *Theriaca* given to it before the Days of *Crito*, as the Author of the Book *De Usu Theriacæ*, ascribed to *Galen*, insinuates. Now *Crito* liv'd under *Trajan*, whereas *Pliny* liv'd under *Nero* and *Vespasian*, and consequently



quently might have seen both the elder and younger *Plinys*, whose Cotemporary he was, tho' he mentions neither one nor the other.

As for the Name *Antidote*, which was bestowed upon the *Theriaca*, it is composed of two *Greek* Words, one of which signifies *against*, and the other *given*; because Antidotes were given against Poisons, Corruption of Humours, or other bad Dispositions of Body. This Word seems in the *Greek* Language to be both of the Masculine and Feminine, and even sometimes of the Neuter Gender; and the *Latins* have said, *hæc Antidotus*, and *hoc Antidotum*. But, in all Probability, the *Greeks* at first used this Word as an Adjective, and not as a Substantive. When they used the Words *ἰσχυρὸν*, they understood the Substantive *δύναμις*, which signifies every Sort of Medicine, Simple as well as Compound. The *Latins* might have translated the Word *δύναμις*, by *Potentia*; but the Idiom of their Language, and the particular Idea they had affix'd to that Word, would not admit of such a Translation. The *Latins* then, for want of a proper Word to express the *Greek* *δύναμις*, made use of the Words *Medicamentum* and *Compositio*, *δύναμις ἰσχυρὸν*, *Compositio contra data*, as if one should say, *δύναμις τελεζαμένη*, a Composition, consisting of four Simple Ingredients; *δύναμις ἰσχυρὸν, ἀπὸ εἰκὸς*, a Composition for the Liver, or the *Aspera Arteria*. The Word *δύναμις* was not only suppress'd by the *Greeks*, when they talk'd of Antidotes, but almost upon all other Occasions: Thus, for Instance, they used *ἡ δὲ δόξα*, to express a Composition of Poppy-heads, and even without the Article, they used *ἀσμεῖον*, to denote a Medicine for the *Aspera Arteria*; *καλὸν*, for a Medicine against the Colic. We may even venture to say, that the Conjunction of these two Words *Antidotus Tranquilla*, or *Theriaca*, imports, that the former is a Substantive, and the latter an Adjective; but we must observe, that the Adjective *tranquilla* is an Epithet given to this Composition, and that the Meaning is the same, as if one should say, *Compositio Antidotus, Tranquilla dicta*; so that these two last Words are equally Adjectives. The Case is the same with regard to the Names of other particular Antidotes, such as *Hiera*, or *Sacred*, *Teleia*, or *Accomplish'd*, &c. I may also shew, that the Word *Antidotus* was an Adjective, from the Use *Scribonius Largus* makes of it, who calls a Plaster, applied to Bites given by mad Dogs, *Emplastrum Antidotum*. I must also observe, that the *Greeks*, in their Turn, had no Word that corresponded directly to the *Compositio* of the *Latins*; for *σύνταξις*, 'tis true, signifies *Composition*; but then it is restrained to the Act of Composing, and did not imply the Effect or Result of that Act, or the Thing composed, which the *Latins*, and we ourselves, mean by the Word *Composition*. In *Artemidorus*, the Word *σύνταξις* occurs, which *Cornarius* translates *Compositio*; but I am inclined to think, that it ought rather to be translated by the Word *Prescriptum*, or the Receipt of a Physician.

Having now hinted at the Name of this Medicine, the Nature and Number of its Ingredients, and the Properties ascribed to it by its Inventor, it now remains, that we should give some Account of the Method in which it was prepared, and the Consistence it had, which was common to it, with all the other Antidotes. In order then to prepare the *Theriaca*, the Spices and other Ingredients capable of being reduced into a Powder, were pounded. The Gums and Juices were dissolved in *Cretan* or *Fulcrinian* Wine, and passed through a Sieve after they were reduced into a Pulp. Then all these were mixed *secundum Artem*, in three times the Quantity of clarified *Attic* Honey. I think it needless to enter upon a fuller Detail, or more particular Account, of this Medicine, because 'tis in our Day too well known to call for a more minute and particular Description. What has been said of the Quantity of Honey used in this Composition, is sufficient to convince us, that it must have been of a pretty good Consistence. I shall not here speak of the various Antidotes which different Physicians invented in Imitation of the *Theriaca*, and the *Mithridate*, neither shall I consider those that were in Use before only; thus much I must observe in general, that they were all nearly of the same Consistence, since they were all made up of various Powders, Gums, Juices, and Honey. *Le Clerc Hist. de la Medicine*.

To this Account of the Origine of the *Theriaca*, I shall subjoin the Method of making it, as directed by the College, with *Quincy's* Remarks.

ANDROMACHI THERIACA. The Treacle of *Andromachus*, commonly called *Venice Treacle*.

Take of the Troches of Squills, forty-eight Drams; of the Troches of Vipers, Long-pepper, Opium, and Troches of Hedychroi, each four-and-twenty Drams; of exungulated dry red Roses, of fragrant *Sclavonian* Orris, of Juice of Liquorice, of Sweet Navew-seeds, of Tops of Scordium, of Opobalsamum, Cinnamon, and the Troches of Agaric, each twelve Drams; of Myrrh, Sweet Costus, or Zedoary, Saffron, true Cassia Bark, Spikenard, Scher-

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nanth, white and black Pepper, Male Frankincense, *Cretan* Dittany, Rhapontic, *Arabian* Stœchas, Horehound, *Macedonian* Parsley-seeds, Calaminth, *Cyprus* Turpentine, Roots of Cinquefoil, and Ginger, each six Drams; of the Tops of *Cretic* Polymountain, of Ground-pine, *Celtic* Spikenard-roots, Amomums, Styrax, Meum-root, Tops of Germander, *Pontic* Phu-root, *Lemnian* Earth, *Indian* Leaf, calcined *Roman* Vitriol, Gentian-root, Gum Arabic, Juice of Hypocytis, Carpobalsam, or in its Defect, Nutmegs or Cubebs, of Seeds of Anise, Cardamoms, Fenil, and Heartwort, of *Acacia*, or in its stead, the inspissated Juice of sour Plums, of the Seeds of Treacle-mustard, Tops of St. John's-wort, Seeds of Bishops-weed, and Sagapenum, each four Drams; of the best Castor, long Birthwort-root, Bitumen Judaicum, or Amber, *Cretic* Daucus-seed, Opopanax, the Lesser Centaury, and fat Galbanum, each two Drams; of old Canary, a sufficient Quantity to dissolve the moist and dissolvable Ingredients; and of clarified Honey, triple the Weight of all the dry Species: Make it into an Eleuary. S. A.

This is likewise made with *Syrupus de Meconio* instead of Honey.

This hath continued the same in almost all the Dispensatories it hath yet passed through, and is not only the capital Alexipharmic of our Shops, but of all *Europe*. It has a great deal more wrote about it, than could be contained in the largest Volume: We shall therefore content ourselves with as short Remarks upon this grand Medicine, as is consistent with that Acquaintance every one in the Practice of Physic ought to have with it. That we frequently call it *Venice Treacle*, is from the great Quantities made there, and thence transported to most Parts of the World. As this has passed through many Ages, and the Hands of many, in their own Opinions, able to alter it for the better, there are abundance of different Recipes extant in Dispensatory Writers; and this of our College seems to be one of the best; that in the *Augustan* Dispensatory differs little from it. *Diemerbroeck* greatly extols the Multiplicity of Ingredients in this Composition, and had odd Notions of the united Efficacies of such Ingredients arising to a much higher Degree, and exalting the Virtues of each much beyond what they were possessed of when separate. *Monf. Chorras*, a *French* Author, has wrote a whole Treatise upon the *Theriaca*, and is very particular upon each Ingredient, but says nothing worth Notice here. *Zwelfer*, in his Animadversions upon the *Augustan* Dispensatory, lays most to our Purpose, in which he has followed *Quercetan*. Many Ingredients are by them justly found fault with, as not at all agreeing with the Intention of the Whole, such as Agaric, Rhubarb, Vitriol, &c. The Troches of Squills are likewise rejected, with those of the Viper; because the manner of making them into those Forms, destroys the Virtues which they are intended to retain. If therefore such were omitted, and others proportionably increased, so that the Opium might still have the same Proportion to the Whole, the Medicine would be much the better.

In the Dispensation of this Medicine, *Zwelfer* divides the Ingredients into several Classes, according to their Similitude of Textures; some to be dissolved as the Gums, and the other powdered separately, and afterwards mixed: But such a Trouble seems altogether needless; for some of the more tough and moist Ingredients will beat well enough with such as are drier, and more brittle, and pass the Sieve together; and some even powder the Opium itself, which is as good a way as any, if it has been already cleansed of its Forces. All the Herbs ought to be cleared of their Stalks, and to be as fresh as possible; and the Roots should be freed from every thing that is unsound or decaying. The Saffron, if its Colour be insisted upon, may be powdered separately, and put into the Wine, drawn from the Vipers. The Galbanum, Turpentine, &c. must be first strained, and mixed with the Honey; and then the Species sifted in leisurely, another stirring it all the time, that it may be well mixed; and last of all, the Wine is to be put in. This is a noble Medicine, and cannot be exceeded by any Composition as an Alexipharmic, and a Cephalic; for there is scarce any particular View, which any Symptom can give in either of these Intentions, for which there are not many Ingredients herein of great Efficacy provided. It is a good Opiate, and may more safely be taken than many of the plainer Opates, in Cases that require some Stimulus to be used at the same time, with such things as procure Indolence; because such alone are apt to occasion Stagnations, and other Inconveniences. There is one Grain of Opium in each four Scruples, and therefore it may be given from one Scruple to two Drams, as the Strength and Circumstances of the Patient require.

Many here have a Prejudice, that this Medicine, made in *England*, is not so good as what comes from *Venice*, as if the Name, which by mere Accident it has obtain'd, confined it to be made good only in that Place, and their Vipers, they



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they say, are much better than any other. But there is no Foundation for this ; for tho' their Country is hotter, and so may the more rarely the viperine Juices, in which their Efficacy herein consists ; yet the manner of their making them into Troches loses so much of their Volatility, that the way we have here directed to manage them, carries much more of their Virtues into the Medicine. Besides, this is but a naked Supposition, and in which there does not seem to be any Weight ; for if we may judge by their poisonous Properties, the Bites of our Vipers, at the proper Time of the Year, which is the hottest, are as efficacious and deadly as theirs. But to end all Controversy on this Head, if a proportionable Quantity of the volatile Salt, drawn from these Creatures, be put into this Medicine, instead of any other Preparation, the Virtues will then be exactly the same ; for the Salt which is produced from one, tho' it does not rise in such Plenty, is however of equal Virtues with that which comes from another. But if any other Country has the Advantage over us in this one Ingredient, ours has it much more in another of as great, if not greater Moment ; and that is, in the Saffron ; for that which our own Country produces, is of four times more Strength and Goodness, upon every Account, than any which comes from abroad. This foolish Opinion, of the foreign Theriaca being better than what is made here, has occasioned the common People to be cheated, as they too much deserve, with the worst of Medicines for right Venice Treacle. For they, imagining that to be the proper Place of its Manufacture, and that it can come from thence genuine, at cheaper Rates than it is here sold at in our Shops, please themselves much with a Tincture, at a low Price, of a dirty Sailor, who pretends to have imported it, wrapt up with printed Directions in the Italian Tongue ; whereas some of our Druggists, and unworthy Wholesale Dealers in Pharmacy, make this wretched Stuff of little else than the Sweepings of their Shops, have the very Bills printed in London, and put it off in this Disguise, upon such simple People. In Reality, no Country can make this cheaper than ourselves, and not easily so cheap, because many of the Ingredients are furnished us from both the Indies. And no one here, buying every thing to the best Advantage, can make it for so little as three Shillings a Pound out of Pocket ; and therefore any one may judge what that must be, which is sold for less, as it is by these pretended Importers. They who have any Suspicion, that this is an Injustice upon their Venice Treacle Merchants, may be satisfied at almost any Printer's, who print and keep by them such Italian Directions ; unless they can persuade themselves, that an Apothecary at Venice is forced to send to London to have his Bills printed.

This one Remark more the present Practice will not suffer us to omit, which is making this Medicine into an Electuary with *Syrupus de Alceon*, instead of Honey ; but such who think there is equal Reason for so doing, proceed upon a great Mistake. The Diacodium is calculated for an Allstringent, to which Intention Honey is opposite, because it attenuates and deteiges, and therefore with great Reason was the *Syrupus de Alceon* substituted in its Room ; but in an Alexipharmic Composition, as the Venice Treacle is, to reject Honey, which is of the same Intention, and very powerfully so too, and substitute what is contrary, unless by Accident, seems to be owing more to Whimsy, or the Vanity of leading an Example, than any good Reason. Opiates indeed contribute somewhat, which, we say, by Accident, forwards the Intention of an Alexipharmic ; but in the Theriaca there seems to be a full Proportion of Opium already ; so that by the Addition of the Diacodium, instead of procuring that easy Relaxation which favours the Operation of an Alexipharmic, there is induced such an Insensibility, that the Secretions will rather be diminished than enlarged ; that is, instead of warming the Patient into a Sweat, he will be dozed into a Stagnation, and so have a Fever, which might be soon thrown off, changed into one of a putrid malignant Kind. And Instances of this Nature I have more than once met with, from the common Venice Treacle, when imprudently taken, or in an Over-dose ; and therefore such Accidents are much to be feared, when this Alteration comes more to take Place. The greatest Reason which can be alledged for this Practice, is the Honey disagreeing with some particular Constitutions ; but one Instance of this does not happen to a hundred of the contrary : And, if this is sufficient, it pleads for the same Alteration in most of the Official Electuaries, because there are few of them without it. *Quincy's Dispensatory*.

*Quincy* is undoubtedly right in his Remark with respect to the Change of Honey for Diacodium in this Composition ; for if it is made without Honey, it must be a Medicine very different in every respect from the true Theriaca Andromachi ; because Honey, by its Fermentation, induces a very great Change in all the Ingredients which enter the Composition of this Capital of the Shops, and unites the Virtues of all the Simples together, so as to become altogether as one, and to act with Uniformity in the Compound.

The Receipt of *Myrsinus* has the Ashes of Crawfish burnt in this Composition.

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ANDROMACHI ANTIDOTUS AD CALCULOSOS. *Andromachus's* Medicine for the Stone and Gravel. It breaks the Stone by Degrees, and expels it, thoroughly cleansing the Bladder, till the Urine is at last discharged pellucid ; and, what is of greatest Moment, works so perfect a Cure, that the Stones shall not grow again. It is thus prepared :

Take of Seed of Wild Carrots, Anise, Cucumber-seed husked, Seed of Smallage, Parsley, Myrrh, each a Dram and an half ; Cassia, Cinnamon, Celtic Nard, each one Dram ; bruise them in Water, and make them up in the Form of small Lupines, to be taken fasting every Day, for thirty Days together, in a quarter of a Pint of Water. *Actius, Tetr. 3. Serm. 3. Cap. 13.*

ANDROMACHI COMPOSITIO AD DENTES MOLARES, *Andromachus's* Composition for the Grinders or Cheek-teeth, which easeth the Pains thereof in an Hour, is made of

Pepper, Pellitory of Spain, Juice of Spurge, Galbanum, of each an equal Quantity. Make them up with Galbanum, and put the same into the Hollow of your Teeth. *Idem, Tetr. 2. Serm. 4. Cap. 33.*

HEPATICA ANDROMACHI CYPHOIDES. The Hepatic Cyphoides of *Andromachus*, good in all Diseases of the Thorax.

Take of Raisins of the Sun, twenty-five Drams, some have it a hundred ; of Saffron, a Dram ; of Calamus Aromaticus, two Drams ; of Bbellium, Juncus Odoratus, each two Drams and an half ; Cinnamon, Cassia, Spikenard, each half a Dram ; Myrrh, Turpentine, each four Drams ; some have it sixteen ; Aspalathum, a Scruple ; Honey, sixteen Drams ; Wine, a sufficient Quantity. *Aetarius, Meth. Med. Lib. 5. Cap. 6. See CYPHI.*

ANDRONIS MEDICAMENTUM PRO CANCRO. *Andron's* Remedy for a Cancer in any Part of the Body.

Take of the Rind of Pomgranate, ten Drams twenty-five Grains ; of Birthwort, nine Drams twenty-two Grains and a half ; of Aloes, four Drams ten Grains ; of Myrrh, two Drams five Grains ; of Galls, eight Drams twenty Grains ; of Plumous Alum, three Drams seven Grains and a half ; of Flos Aëris, two Drams five Grains. Bruise them, and sift them very carefully ; then pour to them as much Celtic Raisin-wine, as shall make it of the Thickness of Honey. Keep it in a glass Vessel ; and when there is Occasion, take it diluted with austere Wine. This Medicine is good for Carbuncles, for the Ignis Sacer, and for the Girdle, which the Greeks call *Herpes* [ἑρπης]. *Scribonius Largus, Cap. 13.*

ANDRONIS MEDICAMENTUM IN UVAM. *Andron's* Remedy for the Swelling of the Uvula, consists of

Plumous Alum, Squama Aëris, Vitriol, Galls, Myrrh, Misy. Bruise and mix them together, adding by Degrees, as much austere Wine as will make it of the Consistence of Honey. *Celsus, Lib. 6. Cap. 14.*

ANDRONIS PASTILLI. *Andron's* Troches.

These Troches, *Actius* tells us, are good for running Ulcers ; also for Inflammations of the Uvula, and Defluxions on the Tonsils, if the Parts under the Chin be anointed therewith. They take off Films from the Eyes, and are serviceable in the Beginning of Inflammations of the Glandules about the Groins, and for Abscesses in the Intestines after they are broken, when taken in a Clyster with two thirds of a Pint of Water, if there be a Fever, or with the like Quantity of Wine, if there be none. They also deterge the Callosities of Ulcers, and are thus prepared :

Take of Balaustines, ten Drams twenty-five Grains ; Galls, Birthwort, each eight Drams twenty Grains ; Plumous Alum, Vitriol, each four Drams ten Grains (some take but half that Quantity) ; Myrrh, Aloes, Frankincense, Saffron, each one Dram two Grains and a half. Bruise them first separately, and then all together, and reduce them into Troches. *Actius, Tetr. 4. Serm. 2. Cap. 50.*

*P. Aegineta* gives a somewhat different Preparation of these Troches, as follows :

Take of Balaustines, ten Drams twenty-five Grains ; Galls, eight Drams twenty Grains ; Myrrh, Round Birthwort, each four Drams ten Grains ; Vitriol, Saffron, Plumous Alum,



Alum, Crocomagna, Misy, Frankincense, each two Drams five Grains; bruise them in austere Wine or Vinegar. *P. Ægineta, Lib. 7. Cap. 13.*

He reckons it among the vehement Kind of Remedies for the Herpes and Carbuncle. *Lib. 4. Cap. 20. & 25.*

ANDRONION, the same as ANDRONIS PASTILLI.

ANDROSACES, Offic. Chab. 458. *Androsace amua spuria*, Ger. 425. Emac. 531. *Androsace Matthioli altera*, J. B. 3. 368. Raii Hist. 2. 1086. *Androsace altera major Matthioli*, Park. Theat. 560. *Androsace vulgaris latifolia amua*, Elem. Bot. 101. Tourn. Inst. 123. Boerh. Ind. A. 201. Rupp. Flor. Jen. 13. *Auriculæ urfi affinis*, *Androsace dicta major*, Herm. Hort. Lugd. Bat. 82. *Saniculæ affinis Planta*, *Androsace dicta major*, Hist. Oxon. 2. 556. *Alpine affinis*, *Androsace dicta major*, C. B. Pin. 251. SUMMER NAVEL-WORT. Dale.

Androsaces grows in the maritime Places of Syria. It is a slender Herb, with thin Stalks, bitter, leafless, bearing small Pods on the Top, which contain the Seed.

The Quantity of two Drams hereof taken in Wine powerfully provokes Urine in hydropical Persons. The Decoction of the Herb, and the Seed, work the same Effect. It also makes a useful Cataplasm for the Gout. *Diosc. Lib. 3. Cap. 140.*

*Oribasius* reads λευκή, white, instead of λεπτή, slender. *Pliny* also says it is white, and in the rest agrees with *Dioscorides*.

It is a Plant which pushes up many hairy Stalks half a Foot high; the Top, dividing itself into six or seven Parts, forms a sort of Umbel; its Leaves are long and large, hairy, nervous, like that of Plantain; indented all round, spreading round about the Stalk upon the Ground; the Flower is small and white, spreading at the Top, and cut into five Segments; when the Flower withers, a little orbicular Fruit is found as big as a Pea, containing many longish and reddish Seeds; its Root is short and fibrous: It grows in maritime Places, amongst Corn, and in Woods; it contains a great deal of Salt.

It is aperitive, and good for the Dropsy, for Retention of Urine, and for the Gout.

*Androsace* is so called, from its bringing Relief to Men: ἀνδρὶ ἀλὺν σίκεσα. *Lemery de Drogues.*

ANDROSÆMUM, Offic. *Androsæmum vulgare*, Park. Theat. 575. Merc. Bot. 1. 19. Phyt. Prit. 8. Mer. Pin. 8. Raii Hist. 2. 1020. *Androsæmum maximum frutescens*, C. B. Pin. 280. Boerh. Ind. A. 242. *Hypericum maximum (quasi frutescens) bacciferum*, Hist. Oxon. 2. 472. *Hypericum maximum Androsæmum vulgare dictum*, Raii Synop. 3. 343. *Siciliana, aliis Ciciliana, vel Androsæmum*, J. B. 3. 384. *Siciliana, vel Androsæmum, tota lena quibusdam*, Chab. 457. *Clymenum Italicum*, Ger. 435. Emac. 543. TUTSAN, or PARK-LEAVES.

It grows in Hedges and Thickets, flowers in July and August; the Flowers, Leaves and Seed are used, which have the same Virtues as Hypericon, or St. John's-wort. Dale.

ANDROSÆMUM is by some called *Dienysfas*, by others *Afcyrus*; but there is a Difference between this Plant and *Hypericum* and *Afcyrus*. It is a shrubby Plant, with small slender Twigs, and Branches of a scarlet Colour, and Leaves three or four times as large as those of Rue, which, being bruised, yield a vinous Juice. At the Head it expands itself into a Multitude of Branches, about which grow small yellow Flowers, producing a Seed in the Calyx, like that of black Poppy, and distinguished by Marks, as if they were engraved.

The Leaves, bruised, yield a resinous Smell. The Seed, pounded, and drank to the Weight of two Drams, purges Bile. It is very useful in the Sciatica; but after Purging, the Patient is to take a Draught of Water. The Herb, used in a Cataplasm, heals Burns, and stops Hæmorrhages. *Dioscorides, Lib. 3. Cap. 173.*

ANDROSÆMON, or, as others call it, *Afcyrus*, is not unlike *Hypericon*, only has greater, thicker, and redder Stalks. The Leaves are white, and shaped like those of Rue. The Tops of the Herb, bruised, yield a Blood-like Juice. It springs up among the Vines, and is commonly digged out about the Middle of Autumn, and hung up. Bruised with the Seed, and taken to the Weight of two Drams, either in the Morning or after Supper, in Hydromel, Wine, or pure Water, it is a good Purge. But the next Day, the Patient must take the Weight of a Dram of Caper-root mixed with Rosin, and four Days after, he is to do the same. After Purging, the Patient, if of a robust Constitution, ought to drink Wine; if weak, Water. *Pliny, Lib. 27. Cap. 4.*

It is called *Androsæmon*, from ἀνδρ, a Man, and αἷμα, Blood, from its making the Fingers of those who rub it, look bloody. *Oribasius, Med. Coll. Lib. 11.*

The Stalks of *Tutsan* grow to be two or three Foot high, smooth, reddish, and not much branched, having two large oval brownish green Leaves set opposite at every Joint on very short Foot-stalks; those next the Ground, being usually smallest. On the Top of the Stalks grow the

Flowers, several together; on pretty long Foot-stalks, of five small yellow roundish Leaves apiece, with Stamina in the Middle, of the same Colour, yielding a reddish Juice, upon being rubbed between the Fingers, and are succeeded by Berry-like Seed-vessels, green at first, and afterwards of a deep-shining Purple, almost black, containing small Seed in a purplish Juice. The Root is somewhat thick, of a reddish Colour, with many Fibres. It grows in Hedges and Thickets, and flowers in July.

The Leaves and Flowers are sometimes used, and are counted much of the Nature of St. John's-wort, being a good Wound-herb, used both inwardly and outwardly; and is therefore called in French, *Toutfain*, signifying *All-heal*, and from thence by us corruptly, *Tutsan*. *Miller Bot. Off.*

It contains a great deal of Oil, and a moderate Quantity of Salt and Phlegm.

It is aperitive, vulnerary, resolute, good for the Stone, to kill Worms, to resist Malignity, and guard against Madnefs, being externally or internally apply'd. *Lemery de Drogues.*

ANDROTOME. See ANDRANATOME.

ANECPYETUS, Ἀνεκτύς, unsuppurated, from α Neg. and ἐκτύς, suppurated. See ΕCPTYEMA.

ANEILEMA, ANEILESIS, Ἀνείλημα, Ἀνείλισις, from ἀνίλω, to roll up, or involve. An Involution, particularly such as is caused by Gripes and Flatulencies in the Intestines. *Hippoc. de vet. Med.*

ANEMONE, a Plant which Botanists, from the Time of *Dioscorides*, have distinguish'd into the cultivated, and wild Sort. The first is,

*Anemone hortensis*, Offic. *Anemone Geranii Rupertiani folio cœruleo: an Dioscoridis*, C. B. Pin. 174. Tourn. Inst. 277. Hist. Oxon. 2. 426. *Anemone Geranifolia*, Ger. 304. Emac. 377. Raii Hist. 1. 625. J. B. 3. 405. *Anemone Geranii folio, radice tuberosa, flore cœruleo & albo*, Chab. 462. *Anemone tenuifolia sive Geranifolia cœrulea*, Park. Parad. 208. GARDEN-ANEMONE. Dale.

The wild Sort is call'd

*Anemone sylvestris*, Offic. *Anemone Matthioli*, Ger. 304. Emac. 377. *Anemone sylvestris alba major*, C. B. Pin. 176. Raii Hist. 1. 627. Rupp. Flor. Jen. 128. Tourn. Inst. 277. Elem. Bot. 239. Boerh. Ind. A. 37. Buxb. 23. Hist. Oxon. 2. 425. *Anemone sylvestris latifolia alba, sive tertia Matthioli*, Park. Parad. 202. *Anemone magna alba, plurimâ parte anni florens*, J. B. 3. 411. *Anemone magna alba, capitulo tuberoso, caule densa lanugine canescente*, Chab. 464. WILD ANEMONE.

Of this Plant there are two distinct Species, the garden and the wild ANEMONE; and each of these Species is subdivided into several others, but especially the former, which is carefully cultivated in Gardens, on account of the Beauty of its Flowers. Their Roots send forth Leaves, that are almost round, and resemble those of *Sow-bread*, *Mallows*, *Crane's-bill*, or *Sanicle*. Some of these Leaves are pretty large, and others smaller; some of them are deeply indented, and others not so much; but still each Leaf has its proper Stalk. From the Middle of these Leaves arise small Stalks, bare half way up, where they are adorned with three Leaves, disposed in Form of a Collar. Each of these Stalks bears at its Top a beautiful large round Flower, with several Leaves disposed like those of a Rose. This Flower is single or double, yellow or white, purple or carnation, blue or red, violet, or diversified with several Colours, and sometimes adorned with a Tuft. When this Flower falls, a Fruit appears in its Place, which is generally of an oblong Figure, and includes a Nut filled with several Seeds, each of which is covered with its proper Husk, which is generally soft like Cotton. Its Root is fungous or knotty, and has many Fibres sprouting out from it. The wild *Anemone* grows in rising Grounds, and mountainous Places. Both Species of this Plant contain a great deal of Salt and Oil.

This Plant is deterfive, aperient, inciding, vulnerary, desiccative, but generally 'tis only used externally. It is used in Errhines and Collyriums for Ulcers of the Eyes. *Lemery de Drogues.*

There are two Kinds of *Anemone*, the wild, and the cultivated. Of the latter, one Sort bears a scarlet Flower, another a whitish, or milk-white, and another a purple one. The Leaves are like those of *Coriander*, tho' but slightly jagged near the Ground. The Stalks are downy, slender, bearing Flowers like those of the Poppy, and inclosing a black or sky-coloured Head in the Middle. The Root is of the Bigness of that of the Olive, or bigger, and divided as it were by Joints. The wild Kind is larger in all respects than the other, having broader and harder Leaves, and a longer Head, a scarlet Flower, with small and slender Roots, more in Number than the former. There is one Sort of it which has black Leaves, and more of Acrimony than the rest.

Both Kinds are acrimonious; for which Reason the Juice of the Root, snuffed up the Nostrils, is good to purge the Head. The Root, chewed, draws out Phlegm. Boiled in Passum,

[γὰρ αὐτὸ,



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[*γρὺν*, Wine made of Grapes that have hung on the Vine till wither'd by the Sun] and apply'd as a Cataplasm, it cures Inflammations of the Eyes, deterges Specks, and whatever causes Dimness of Sight, and cleanses Ulcers of Filth. The Leaves and Stalks boiled in Ptisan, and eaten, breed Plenty of Milk in the Breasts, and made into a Pessary, provoke the Menfes; apply'd in a Cataplasm, they remove the Leprosy.

Anemone is by some called *Phenion*. There are two Kinds, the wild, and what is cultivated in Gardens; both delight in a sandy Soil. Of the garden Kind there are several Sorts; for one bears a scarlet Flower, which is the most common, another a purple, and a third a milk-white Flower. The Leaves of these three Sorts are like those of Smallage. They seldom exceed half a Foot in Height, and have a Top like that of Asparagus. The Flower never opens but when the Wind blows, whence it takes its Name. The wild Kind is the larger, has broader Leaves, and a scarlet Flower. Many have mistaken this for the Argemone, others for the red Poppy; but there is a great Difference between them, for both these come later in Flower, nor have they the Juice or Flower-cups of Anemone, and are only like it in having an Asparagus-top.

The Anemones are good for the Pains of the Head, and for Inflammations; help Diseases of the Uterus, and procure Milk in the Breasts. Taken in Ptisan, or apply'd to the Part in Wool, they provoke the Menfes. The Root chewed in the Mouth draws out Phlegm, and makes the Teeth sound; and the Decoction thereof cures Inflammations in the Eyes.

The Magi ascribe much to their Virtues. They order, that as soon as you see the Plant that Year, you take it up, saying these Words, That you gather it as a Remedy for Tertian and Quartan Agues; then wrap it up in a red Cloth, and keep it in a shady Place, till there be Occasion to tie it about the Patient. The Root of that which bears a scarlet Flower, bruised, and apply'd to the Flesh of any Animal, by its putrefactive Quality, causes an Ulcer, and is therefore used as a Deterfive for Ulcers. *Plin. Lib. 21. Cap. 23.*

All the Anemones are acrimonious and deterfive, Drawers, and endu'd with the Faculty of opening the Mouths of the Veins. *Oribas. Med. Coll. Lib. 15.*

*Empystrum ex Anemone.* The Plaister of Anemone.

Take of Colophony, seventy-four Drams; liquid Refin of the Pine-tree, Wax, each four Ounces; Oil, nine Ounces; fresh Flowers of Anemone, taking out the black that is in them, and cutting off their Bottoms, eight Ounces: Boil the Colophony with the Oil over a Fire made of the Wood of the Pine-tree, stirring it with a Spathula of the Tada, [a Sort of Pine-tree] till it comes to a solid Mass; then add the Refin, and boil it again, till it will no longer foul; when put in the Wax, and as soon as this is melted, take the Medicine off the Fire, and pour it upon the Flowers bruised in a Mortar, and work them together with your Hand, kneaded in Oil; for they are glutinous, and no Water must come near them.

It is good for green Wounds, and bruised Flesh; for old, malignant, over-grown Ulcer, which are hard to cicatrize; for Bites of venomous Creatures; for swell'd and inflamed Joints, that are painful, and not without Difficulty moveable; for Strume, Fistula, a Ganglion, Scurtoma, and Furunculus; for tumours as well as spreading Ulcers; for Abscesses in any Part, but especially the Breast. To stop an Hemorrhage at the Nose, they lay a Bolster of it upon the Stomach, or it may be apply'd to the Forehead; in short, it mollifies, discusses, contracts, dries, and is an Anodyne.

If you had rather have it prepared with Vinegar,

Let the Flowers of the Anemone be cleansed, and their Bottoms cut off as before, and then dry'd in the Sun, and afterwards kept in a glass Vessel; then take of them eight Ounces, and pour thereto three Attic Half-pints of the strongest white Vinegar, in which let them macerate a Day and a Night. After this, work it with your Hands, and by Degrees press out all the Juice: Then take of the brightest Colophony, forty-two Drams; liquid Refin of the Pine-tree, Wax, Oil, each four Ounces; Juice of the Anemone, two Attic Half-pints and a quarter of a Pint: Boil the Colophony with the Oil at a slow Fire of the Wood of the Tada, stirring it continually with a Spathula of the same Wood, till it comes to a proper Consistence; then put in the Refin by Degrees, lest it should boil over the Vessel, and boil all again till they come to a solid Mass; when put in the Wax, which being melted, take it off the Fire, stirring it with the Spathula, till it ceases boiling; then pour in the Juice by Degrees, carefully watching that there be no Ebullition, to which it is very subject, so as to run over. While the Mixture is thus gradually made, the Medicine takes a various, purple, and pleasing Colour. All the Juice being thus poured

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in, and united with the rest, remove the Whole into a Mortar, and when it is cold work the same with your Hands, till all the Juice is absorbed.

This Medicine is good for the same Purposes as the former, only is of a milder Nature, and more accommodated to the Bites of Dogs, and venomous Creatures. Being diluted with Oil of Roses, it is proper for Ulcers in the Arms and Pudenda, when they need only mild Remedies. *Actius, Tetr. 4. Serm. 3. Cap. 12.*

## ANEMONOIDES,

Offic. *Anemonoides flore albo*, Boerh. Ind. A. 36. *Anemonoides flore majore*, Dill. Cat. Giff. 39. *Anemone nemorosa, flore majore*, C. B. Pin. 176. Buxb. 20. *Anemone nemorum alba*, Ger. 306. Emac. 387. Raii Hist. 1. 614. Synop. 3. 259. *Anemone nemorum*, Merc. Bot. 1. 19. Phyt. Brit. 8. Mer. Pin. 8. *Ranunculus phragmites albus vernus*, J. B. 3. 412. Chomel. 653. Tourn. Inst. 285. Elem. Bot. 241. *Ranunculus nemorosus albus simplex*, Park. Theat. 325. *Ranunculus*, Clab. 465. *Nemorosa, flore roseo albo expansa*, Rupp. Flor. Jen. 123. **WOOD ANEMONE.** *Dale.*

The Word is derived from *ἄνεμ*, Wind, and *ἄνθος*, Form, that is, in the Form or Image of Anemone.

The Characters are;

The Root is perennial, and for the most part grumose and creeping; the Leaves are finely cut, three of which, for the most part, surround the Stalk; it hath a single Flower upon each Stalk, which consists of many Leaves, and are expanded in Form of an Anemone, having many Stamina or Threads in the Middle; the Seeds are collected into an oblong Head, and are, in Shape, like those of the Ranunculus, having no Down adhering to them.

Miller enumerates six Species, and Boerhaave twelve, of this Plant.

The *Anemonoides flore albo* is found wild in the Woods, in most Parts of England; some of the other Varieties Miller says he hath gathered in great Plenty, in the Wilderness belonging to the Gardens at *Wimbleton* in Surry, which were probably at first taken from some Woods in England. In this Place they increase so fast, that the Surface of the Ground is cover'd with them in the Spring; and what is more remarkable, there the large blue and double Sorts are the most common. *Miller's Dictionary.*

It is an hot and acrimonious Plant, that will raise Blisters on the Skin. *Dale.*

ANEMONOSPERMOS, from *ἄνεμ*, Wind, and *σπέρμα*, Seed, because the Wind easily bears away the Seed.

The Characters are;

It hath an hemispherical scaly Cup; the Flower is radiated like the Ragwort; but the Seeds are copiously surrounded with a pappous Down, as are those of Anemone.

Miller enumerates four, and Boerhaave six, Species of this Plant.

They were originally brought from about the *Cape-of-good-Hope*, into the curious Gardens in *Holland*, where they have been propagated, and from whence they have been distributed into the several Parts of *Europe*, where they are now growing. *Miller's Dictionary.*

ANEMOS, *ἄνεμ*, Wind. See *VENTUS*.

ANENCEPHALOS, *ἄνεγκεαλ*, brainless, from *α* Neg. and *ἐγκεφαλ*, the Brain. In general it signifies mad, or foolish, but in a more restrained Sense may be apply'd to such Monsters as are born without Brains, on which *Bonetus* in his *Medic. Septentr.* has made a Collection of Observations. *Castellus.*

ANEOS, *ἄνεος*, in *Hippocrates*, as expounded by *Galen*, signifies *ἀρσεν* *ἢ τὸν τὸν ἐμπεπλεγμένον*, "one struck with the Loss of his Voice and Reason;" and by *Hesychius*, *ἄνω* are said to be *ἄρσεν* *ἢ ἐκ τῆς ἡσυχίας*, "seized with a Stupor and Loss of Voice." *ἄνεος* is put for *ἄνε*, according to the *Attic* Dialect. *Foefius.*

ANEPICRITON, *ἄνεπικρίτων*, something of which no Judgment can be formed, that is neither the Object of the Understanding nor Senses, from *α* Neg. and *ἐπικρίτων*, to judge. Thus *ἄνεπικρίτων διαζωρία*, with the Empirics, [a Sect of Physicians among the Antients] signifies a Controversy and Disagreement in Words about a thing that can never be determined or defined, because of its *Acatalepsia*, which was a Word much in Use among that Sect, as *Galen* says, *Lib. de Seclis*, &c. See *ACATALEPSIA*.

ANERECTOS, *ἀνέρεκτος*, *ἀνέρεκτος*, *ἀνέρεκτος*. From *α* Neg. and *ῥεγνυμι*, to break. Apply'd to Fruit or Corn, not hull'd or broken in the Mill, or with the Pestle. *Ἀνέρεκτος ἔσθω*, in *Hippocrates*, *Lib. περὶ πρῶτων*, signifies Bread made of Wheat not cleansed from the Bran.

ANESIS, Remission. See *REMISIO*.

ANESTRAMMENA, *ἀνεστράμμενα*, from *ἀναστρέφω*, to change, or subvert, in *Hippocrates*, is expounded by *Galen* to mean the same as *ἀναισθημένα*, *ἀναισθημένα*, from *ἀναισθη*



*πάζω*, to trouble, or disturb; and 'tis apply'd, he says, to Urine, to signify such as is turbid or thick, without depositing any Sediment after standing.

ANETHOXYLA, *Ἀνεθοξύλα*. So the Translator of *My-repsus* reads the Word, instead of *ἀνεθόξυλα*, as it is in the *Greek* Manuscript, and understands it of the woody Root of Dill. *Adyrepfus*, *Seet.* 8.

ANETHUM, *Offic.* Ger. 878. Emac. 1033. Raii Hist. 1. 415. Mor. Umb. 36. J. B. 3. 6. Chab. 384. Dillen. Cat. Giff. 136. Rivin. Irr. Pent. *Anethum hortense*, C. B. Pin. 147. Hist. Oxon. 3. 311. Tourn. Inf. 318. Elem. Bot. 268. Boerh. Ind. A. 65. Buxb. 20. Rupp. Flor. Jen. 222. *Anethum hortense sive vulgare*, Park. Theat. 886. DILL. Dale.

The Decoction of the Tops and Seed of dried Anethum, being drank, promotes the breeding of Milk, and easeth the Gripes and Inflations, stops a Looseness and Vomiting, occasion'd by Humours floating in the Stomach, provokes Urine, and asswages the Hiccups. Often used, it renders the Sight dull, and consumes the Seed. The same is also good in an Infection for hysterical Women. The Seed burnt, and sprinkled on the Part, takes off a Condyloma. *Dioscorides*, *Lib.* 3. *Cap.* 67.

*Pliny* adds, that the Root is used, in Water or Wine, to anoint Inflammations of the Eyes [*Epiphoræ*]. The Seed, vehemently heated, and smell'd to, stops the Hiccups. Taken in Water, it takes off Uneasiness from Crudities. The Ashes give Relief in a *Prolapsus Uvulae*. *Pliny*, *Lib.* 20. *Cap.* 18.

The Root, heated, and applied to the Mouth of the Uterus, provokes the Menstrues. *Oribas.* *Synop.* *Lib.* 1. *Cap.* 22.

Burnt, and the Ashes sprinkled upon humid Ulcers, especially about the Pudenda, disposes them to heal; and cicatrizes inveterate Ulcerations under the Prepuce. The green Herb, as having less Heat, and more Moisture, is a better Digestive and Hypnotic, but the dry is more discutient. *Actius*, *Tetr.* 1. *Serm.* 1.

This Herb, both in Root, Stalk, and Leaf, very much resembles common Fennel, except that it seldom grows so tall, or so much branch'd; it bears such yellow Umbels of Flowers, after which come Seeds rounder, broader, and flatter than those of Fennel. The whole Plant is of a strong Scent, less pleasant than Fennel. Dill grows in Gardens, and flowers and seeds in July and August. The Leaves and the Seed are used.

Official Preparations from Dill are only the *Oleum Anethinum*, made by Infusion, and gentle Coction of the Leaves and Tops in Oil. *Miller Bot. Off.*

I meet with nothing with respect to the Virtues of Dill amongst the Moderns, but what has been specified from *Dioscorides*, and the Authors above quoted.

#### The Preparation of the Anethinum.

Take of the Flowers of Anethum, eleven Pounds eight Ounces, and infuse them in eight Pounds and nine Ounces of Oil for a Day; then press them out with your Hands, and set the Oil by for Use. If you think fit to make a second Maceration, take fresh Flowers, and infuse them in like manner.

It has the Virtue of mollifying and relaxing the Parts about the Uterus; and is of Service in the periodical Returns of a Rigor, being of a warming Quality, by which it relieves under Lassitudes, and helps Pains in the Joints. *Dioscorides*, *Lib.* 1. *Cap.* 61.

*Oribasius*, who every-where transcribes *Dioscorides*, reads him as appointing equal Quantities of Oil and Flowers, that is, eleven Pounds eight Ounces of each. *Orib. Med. Col. Lib.* 11.

#### ANETHINUM VINUM, Dill Wine.

Take of ripe, fresh, and sifted Seed of Anethum, nine Ounces; tie them up in a Linen Bag, and put them into ten Gallons two Pints of *Mustum* [Wine unfermented]; let them macerate for three Months, and afterwards put up your Wine into proper Vessels.

It creates an Appetite, helps Sickness at the Stomach, and Difficulty of Urine, and makes a sweet Breath.

After the same manner are made Wines of Parsley, Fennel, and Smallage, which have the same Virtues as that of Dill. *Dioscorides*, *Lib.* 5. *Cap.* 73, 74, 75.

#### OLEUM ANETHINUM, Oil of Dill,

Is made of the fresh Tops of Dill, before the Seeds are grown solid and acrimonious; for it would be unfit for this Purpose, if the Flowers were wanting.

Take only the green tender Tops, or Shoots, to the Quantity of an Ounce, and infuse them in an *Italic* Pint of Sweet Oil. Let the Mouth of the Vessel be well closed, and the Vessel set to stand in the Sun for forty Days.

This is hotter than Oil of Chamomile, and is therefore proper for Latitudes in the Winter, for it mollifies and moistens. *Vet. L.*

It is also serviceable in feverish Disorders arising from Phlegm, and in all Distempers caused by Cold, especially where the Tendons or Muscles are affected. *Actius*, *Tetr.* 1. *Serm.* 1.

This Oil may be made, in case of Necessity, without Infusion; that is, by boiling the dry Tops of the Dill in a double Vessel; and so may Oil of Chamomile, &c. be prepar'd; but then these Oils are weaker than those which are made of the green Tops, and suffer'd to stand in the Sun. *P. Aigineta*, *Lib.* 7. *Cap.* 20.

The Method directed by the College for making the *Oleum Anethinum*, is thus:

Take of the Flowers and Leaves of Dill, bruised in a marble Mortar, with a wooden Pestle, four Ounces; Oil of Olives, one Pound: Expose them to the Mid-day Sun, in a glass Vessel well stopp'd, for a whole Week, and shake them together every Day; then let them gently simmer in a Bath-heat, and press out the Oil: Put in fresh Dill, which manage after the same manner, and repeat the Process a third time; then let them stand together for forty Days; at the Expiration of which set by the Oil for Use, without pressing out the Dill.

There is also a Chymical Oil prepar'd from the Seeds of Dill, in the following manner:

Take two Pounds of Dill-seed bruised; of Spring-water twenty Pints: Let them be distill'd in an Alembic, with its Refrigeratory; and then let the Oil be separated by a proper Funnel.

These Oils partake of the Virtues of the Plant.

ANETICUS, *ἀντικός*, from *ἀν* *τιμι*, to remit. An Epithet of such Remedies as have the Virtue of remitting Pain, and are call'd Paregorics. *Castellus*.

ANEURYSMA, from *ἀνευρύω*, to dilate much. An Aneurysm.

An Aneurysm may affect any Part of the Body, but most frequently happens in the Throat, where it produces a Tumour call'd Bronchocele, which is most incident to Women in Labour, because of the violent Retention of their Breath. This Disease also affects the Head in the Parts about the Arteries, or any Part of the Body where an Artery happens to be wounded; as, for Instance, when an unskillful Operator, in attempting to open the Vein of the Cubit, at the same time cuts the subjacent Artery.

Every Aneurysm is occasion'd either by a Transudation, an Anastomosis, or a Rupture, in both which Cases there is a gradual Extravasation of the Blood and Spirits, which are collected under the Skin.

The Characters of an Aneurysm are a small or great Tumour, of the Colour of the Skin, void of Pain, soft to the Touch, and seeming to be of a loose spongy Substance, yielding to the Compression of the Fingers so as almost to vanish, but recurring as soon as the Fingers are taken off; which Character is most remarkable in Aneurysms of the Chin, and such others as are not occasion'd by a Wound: But where a Wound of the Artery has preceded, and, the Skin afterwards closing up, there has follow'd a Dilatation of the Vessels, the Tumour is less soft; for the Blood, more abounding with Spirits, runs into grumous Concretions, and extends the Tumour.

As to the Therapeutic Part, those Aneurysms which happen in the Head or Throat are accounted desperate, and are not attempted by Surgeons: For as soon as the Aneurysm is cut, there follows an excessive Hemorrhage, with such a Profusion of vital Spirits, that the Patient often dies under the Operation. But as to an Aneurysm in the Cubit, we treat it in the following manner:

First, we mark out the Artery that extends itself along the internal Part of the Arm, from the Arm-pit to the Cubit. Then, in the same internal Part of the Arm, three or four Inches below the Arm-pit, we make a simple Incision lengthways, in the Place where the Artery is most obvious to the Touch; then by degrees we lay the Artery bare, by separating it from the Skin and the other incumbent Corpufcles; we then take hold of the Artery with a blunt Hook, extend it, and secure it by two firm Ligatures. This done, we make an Incision in the Part between the Ligatures, and fill the Wound with Powder of Frankincense, and, laying Lint thereon, apply a proper Bandage: After this, we proceed, with great Security, to cut the Tumour in the Cavity or Flexure of the Cubit, being under no Apprehension of an Hemorrhage. After Evacuation of the grumous Contents of the Tumour, we search out the Artery whence the Blood made an Eruption, and having discover'd it, take it with a Hook, tie it in two Places, and make an Incision between them, as we did in the former Part; then filling up the Wound with Powder of Frankincense, as before, we procure a Suppuration.

For an Aneurysm in the Throat, a Plaister of Cypress is a proper topical Remedy. *Actius*, *Tetr.* 7. *Serm.* 3. *Cap.* 10.



The Aneurysm is a Tumour, soft to the Touch, and yielding to the Fingers, and owing its Generation to Blood and Spirits. *Galen* says of it: "When the Mouth of an Artery is open'd, the Affection is call'd *aneurysma* [a Dilatation]: The same thing happens, when, the Artery being wounded, the incumbent Skin is cicatrized, but the Wound of the Artery remains, being neither conglutinated, cover'd with a Cicatrix, nor shut by Incarnation. Affections of this Kind are known by the Pulsation of the Arteries, or more especially by compressing the Artery; for then all the Tumour disappears, the Matter that caused it recurring into the Artery." So far *Galen*; but we distinguish these Affections in the following manner: Those which proceed from the Anastomosis of an Artery, appear of a more oblong Form, are deeply situated, and, when impress'd by the Fingers, a Noise is perceiv'd. When the Affection is caused by a Rupture, no Sound is heard, but the Tumour is rounder, and more superficial.

Aneurysms which happen in the Arm-pits, the Groins, or the Neck, or in other Places, if they are of a remarkable Bigness, are not attempted by the Surgeons, because of the Largeness of the Vessels; but those in the extreme Parts, the Joints, or the Head, are treated as follows:

If the Tumour proceeds from a Dilatation of the Artery, we make a direct Incision lengthwise; then taking hold of the Lips of the Wound with Hooks, we separate the Artery, by the Help of proper Instruments, from the Skin and Membranes, laying it bare; then passing a Needle under it, we make a Ligature with two Threads: After this we prick the intermediate Part of the Artery with the Incision-knife, evacuate its Contents, and endeavour a Suppuration till the Threads fall off.

When the Aneurysm is caused by a Rupture, we take entire Hold of it, as far as may be done, together with the Skin, with our Fingers; then pass under it a Needle with a double Thread, and, after it is pass'd, cut the Loop, by which means we have two Threads, in order to make a Ligature on each Side the Tumour. If we are apprehensive, that the Threads should slip, we may pass another Needle, exactly by the same Perforation, threaded also with a double Thread; which being cut like the former, you may have four Ligatures upon the Tumour; then opening the Tumour in the Middle, we take away the Contents by the Aperture of the Skin, leaving the Ligature; then we apply a Compress moisten'd with Wine and Oil, and prosecute the Cure with Lint. *P. Aegineta, Lib. 6. Cap. 37.*

*Dr. Freind* takes Occasion, from the Doctrine of *Paulus*, with respect to an Aneurysm, to make the following Observations on this Subject:

An Aneurysm by *Galen*, and we see here by *Paulus*, is described to be a Tumour, which rises from arterial Blood extravasated; and that it proceeded from a Rupture in the Coats of the Arteries, was the constant Opinion of all the Greek and Arabian Writers. *Fernelius* was the first, who asserted, that the Artery was only dilated, but not burst, in an Aneurysm: And *Vesalius* seems to be of the same Opinion; for *Adolphus Oeco* gives us the Relation of a Patient he had the Care of, in Conjunction with *Achilles Grafferus*. The Case was a Tumour in the Back, and that excellent Anatomist being call'd in, soon discover'd what it was by the Pulsation, and pronounced it an Aneurysm arising from a Dilatation of the great Artery; and, at the same time, he said, that the Blood was contain'd within the Coats of it, as 'tis in those of a Vein in a Varix; that he had found in these Swellings sometimes an Humour, concreted like Ice, or Crystal, sometimes like Suet, and sometimes Blood, grumous like a Mola. Upon Dissection, the Cavity of the Aorta was found vastly distended, and much clotted Blood in it, as *Vesalius* had foretold, which gain'd him a great Reputation. That the Arteries are capable of Distention, we find often in Persons who are poison'd, and in some morbid Cases. 'Tis a remarkable Instance which *Vidus Vidius* relates, and owns it to be a rare one, of a prodigious Intumescency in all the Arteries of the Head, quite round, so as to resemble large Varices. He adds, that *Fallopian* having undertaken to open it, just as he was going to attempt the Operation, being discouraged by the Bigness of the Tumour, alter'd his Opinion, and would not proceed: But such a Distention as this, which spreads itself equally through so many Branches, would scarce, I believe, be call'd an Aneurysm, which is a Tumour of a quite different Nature, and more circumscrib'd.

*Sennertus*, refining upon the Notion of *Fernelius*, and not satisfied with a bare Dilatation, makes the Nature of all Aneurysms to consist in a Rupture of the Muscular, or inner Coat of the Artery, while the outer, in the mean while, remains unbroken. It seems to me very plain, that he borrows this Doctrine, tho' he mentions nothing of it, from *Hildanus*, who, in express Words, said the very same thing before him. The Case *Hildanus* describes is that of an Aneurysm, succeeding upon a Puncture; and in that Case it may possibly happen, as he conjectures, that the outer Coat may upon Compression unite, being compos'd of membranous and very glutinous Parts, as is evident from all Glue being extracted from such Skins; but the Fibres of the inner Coats, being muscular, when they are

once broken, must of course contract and shrink up, and, by starting from one another, be more difficultly brought to a Reunion: And I can scarce think it well conceivable, that any other Aneurysm can be form'd in this manner, than that only, and that not always, which comes upon a Puncture; for it does not seem probable, that, when the Cause is intrinsical, a Force which is supposed able to burst the inner Coat, should find any Resistance from the outer, which is own'd to be at least five times weaker. But, however, the Notion we have mention'd, though scarce so much as plausible, was embraced by *Willis*, *Barbette*, and others, and became the fashionable Definition of an Aneurysm for many Years. And, indeed, since the Opinion of the Blood being not extravasated was first started, it may be observed, that all the Writers of Bodies either of Physic or Anatomy, have run into this Hypothesis, without knowing much of the Subject they writ upon, or indeed of what they writ upon the Subject. To give an Example: *Forestus* contends vehemently, that all Aneurysms come from a Dilatation of the Artery; and yet, in the very Instance, which is the only one in his Works he gives us of an Aneurysm, the Tumour came from a Rupture, and the Blood was extravasated. And *Diemerbroek*, in Complaisance to the Doctrine then in Fashion, defines an Aneurysm, in Opposition to Mr. *Regi*, who was for a Rupture in the Artery: Then he tells a Story of an Aneurysm, where there was a Rupture; but at last judiciously concludes, that 'twas no Aneurysm at all, for no other Reason but because there was a Rupture, and so consequently did not come within his Definition.

The chief Arguments which the Assertors of Dilatation urge, and which those who acknowledge a Rupture in the Artery are at a Loss to answer, are only two: How comes it to pass, if the Blood be not confin'd within the Coats of the Vessels, that there is a Pulsation in an Aneurysm? How is it, that the Blood, if extravasated, does not turn to Pus? As to Pulsation, it may, I presume, be easily conceived, how the constant Impulse of the Blood of the Arteries may communicate a Motion to that which lies contiguous to it, though extravasated. The Force of Percussion is vastly great; and we find, by Experiment, in a Bladder full of Air, the least fresh Impulse from a Syringe will move all that is contain'd in it, and distend its Sides. If the Artery is large, if it lies superficial, and near the Centre of the Tumour, and if the Aneurysm be not diffused too much lengthways, the Pulsation will be strong, tho' the Coat of the Artery be burst; and this may be proved not only from Reason, but from Matter of Fact. We have a Case in *Severinus*, where, upon a Wound in the great Artery of the Thigh, there was an Effusion of six Pounds of Blood in the Interstices of the Muscles; there was so violent a Pulsation in the Swelling, as to lift up both one's Hands, when laid upon it. When the Aneurysm lies deep among the Muscles, very often the Pulsation is not sensible. We may add to this, that it may grow more obscure, and at last be utterly extinguish'd, as the Coagulation of the Blood increases; and of this we have Instances, both in *Severinus* and Mr. *Littre*, where the Pulsation was very violent at first, and afterwards entirely vanish'd; and, therefore, we must not look upon this as a constant Concomitant in the present Case. Indeed, in most Swellings, we ought rather to argue negatively; and if we are not sure of Pus, we ought always to be suspicious of an Aneurysm; and, for want of this prudent Fear, some have mistaken, and fatally cut it for an Abscess. What has been said of Pulsation, may let us into the Solution of the second Objection; for if we can conceive how there can be a Motion communicated to the Tumour, we may naturally and easily comprehend, how the same Motion may preserve the Blood from Putrefaction, as well as if it were contain'd in the Coats of the Artery, enlarged by Distention only. A very little Degree of Impulse will serve to hinder a large Mass of any Fluid from an entire Stagnation. Accordingly, in an Ecchymosis, the extravasated Blood, we see, very often never suppurates; or, when it does, there is some Part of it found turn'd to a red Coagulum, distinct and separate from the rest, without any Mixture of Pus. The very Case we have already mention'd in *Severinus*, comes up to the Purpose; where, after the Tumour had been growing forty Days, there were taken out of it six Pounds of pure Blood, extravasated between the Interstices of the Muscles, and it had no sort of Tendency to Pus. Besides, I believe, the very Position which these Writers lay down, that all extravasated Blood turns to Pus, may be justly question'd: What Quality 'tis in the Blood, or what Particles they are which dispose it to Suppuration, is a Problem, I confess, difficult to be solved; but, sure I am, there is something in arterial Blood which often hinders it from being chang'd into Pus, though extravasated.

Thus we see, how insufficient these Arguments made use of are to overthrow the Opinion of the Antients; and we shall find, that Experience itself, from Dissections in these Cases, generally decides the Controversy in their Favour. For, to return to the very Case, where we mentioned *Vesalius* before, (which indeed is the first History of an Aneurysm dissected, that we meet with) besides a Dilatation of the Artery, there was a large



large Rupture, as *Achilles Grafferus*, one of the Physicians concern'd, gives us an Account. *Saporta*, who was contemporary with *Fernelius*, and seems to have him in his Eye, tho' he does not mention his Name, relates three Cases, with all the Particulars, where the Artery was burst. The first is singled out, and repeated at length, by *Semertus*, who pronounces it to be no Aneurysm: Though I can't imagine why he chose this Case to object against, when, of all the three, 'twas the most distinct, and least liable to Objection; for, upon Dissection, a great deal of pure Blood was taken out, and the Artery dilated and burst; and, while the Patient was alive, the Tumour had a great Pulsation, and receded upon Pressure; and if this be not a true Aneurysm, I can't tell what Words can be found out to describe one. *Bartholine* gives us the History of several Aneurysms dissected, particularly of one at *Naples*, which he has made the Subject of a Book, writ indeed in a romantic Style, but where the Fact is clearly enough delivered. This was in the Arm, and happen'd from a Puncture; the Arm was cut off, but the Patient died: The axillary Artery was vastly dilated up to the Arm-pit; it was whole, only where the Puncture had been made; on the other Side, all the Coats were burst, and the Branches which came from it could not be traced; as it lay superficial, there was grumous Blood lying along all the Tract of the Muscles. *Van Horne*, in his Epistle, which is printed with this Treatise of *Bartholine*, has another very remarkable Case: Because the Instance may suggest to us several practical Reflections, give me Leave just, in short, to relate the Particulars. This was a Tumour in the Calf of the Leg; *Antonius Vacca* pronounced it an Aneurysm; others were of a different Opinion, and, out-voting him, prevail'd, and treated it for an Abscess: This Method made the Swelling extend itself to the very Toes, and there occasioned a Gangrene, so that they were forced to cut off the Foot above the Ankle, for fear the Mortification should spread up to the Thigh: The third Day after, they attempted to open the Tumour, and the Patient died in the Middle of the Operation. Tho' the Artery was dilated, so as to be six times bigger than natural, the Side towards the Skin was eaten thro' and burst; and between the Gemelli was a Parenchyma of grumous Blood, very solid, and near the Consistence of Flesh. Somewhat a like Case I was an Eye-witness to myself, with the Surgeons of St. *Bartholomew's* Hospital: The Person was old, and of an ill Constitution; the Aneurysm had been, by his own Account, twelve Years growing, and of late it had increased extremely: It surrounded all the Calf, almost up to the Knee; and the Pulsation was very strong, not only along the Skin, but upon the Muscles, in the thickest Part of the Calf. The Valves of the Veins (many of them) were so entirely broken, that there were Varices both above and below the Knee, of a prodigious Bigness, which nevertheless subsided upon holding up the Leg. Upon Amputation, notwithstanding the Ligatures were strong, and the Operation perform'd with great Dispatch, there was discharged from the Vessels above a Pint of Blood, the Diameters of the Arteries and Veins were so greatly enlarged. In the Aneurysm, upon Dissection, were found, besides fluid Blood, two or three Pounds of Thrombi, which lay like so many Plates upon one another: The whole Tract of the Crural Artery was greatly dilated, and the several little Branches were broken off from the Trunk, not above a Quarter of an Inch from their Rise; and from these the Blood was thrown into the Interstices of the Muscles, and the Gastrocnemii; neither was there any Communication at all from the Bottom. The Bones were so carious, that there was a great Hole in the Tibia, and four Inches at least in the Fibula entirely wanting. This Circumstance of the Bones being carious, often attends an Aneurysm: *Ruyssch* has two Cases, where all the true Ribs, and the Sternum, were almost consum'd, and the little which remain'd was all rotten: And we may easily conceive, how such a Tumour, by a constant Pressure, may affect the Periosteum, and cause an Obstruction there, and by that means gradually waste the Bone itself. We may learn another thing too from this Circumstance, that, since so solid a Substance as the Bone cannot resist the Pressure of an Aneurysm, the arterial Coats may be thought more likely to yield to its Force, and have their Fibres destroy'd by it. *Lancisi* gives us the History of an Aneurysm in the ascending Trunk of the Aorta, where the Patient, who had some time before complain'd of a Palpitation, Fainting, Pain, Streightness, and Beating in the Thorax, died suddenly: The upper Part of the Sternum was press'd a little outward on one Side. Upon Dissection, in the whole Curvature of the Aorta, was found a Substance like Lard, inclosed in a Cystis; there was a Hole into the very Pericardium, in which accordingly were found two Pounds of Blood. He is of Opinion, that all Aneurysms come from a Dilatation of the Artery; and so, very probably, at first most of them do: Yet, in the present Instance, he speaks of the Fibres being corroded, and from thence accounts for the Dilatation, as he calls it, of them, in which the true Nature of an Aneurysm (he says) consists; that is, in *English*, I think, in an unripping or tearing of the arterial Coats. A Case, exactly like this, we find in *Laurentius* of *Guicardin*, where not only

the Cava and its Valves were all burst, but the Orifice of the Aorta enlarged to the Bigness of one's Arm. So it was, in a like Case, related by *Paré*, where the inner Coat of the Artery, tho' ossified, yet at the same time was burst. Certain it is, the Aorta, before its bending, is easier dilated, upon the Account of the Resistance the Blood meets with from the Curvature there; and, for this Reason, Aneurysms ofteneft happen in this Part of the Artery; and one may easily conceive, that if they can consist in Dilatation only, it can no-where else so likely take Place as here.

Mr. *Littre* in the *French Memoirs*, gives a long and particular Detail of two Aneurysms in this Place; where the Artery was thrust out so, as to form a Sack, which reached up into the Thorax and Neck, and in one Case, even along the Neck to the lower Jaw. [See these Cases below]. In both these Cases, at first the Persons complained of a Beating, which exactly answered that of the Arteries, and of an uneasy Struggling in the Thorax, attended at length with a great Oppression, a Difficulty of Breathing, and an universal Languor, some time before any thing was perceived outwardly above the Clavicles; afterwards other Symptoms appeared, much like what I have observed myself in a parallel Case, such as Pain, not only in the Chest, but in the Shoulders, the Arms, and the Head; in the last, often a Pulsation likewise; very little Sleep, and that often interrupted; and Inability often to lie down in Bed, and always a greater Ease in a leaning Posture forwards; the Breathing sometimes so disturbed, as to give Apprehensions of a sudden Suffocation. In the first of these Instances, some Part of the Ribs, the Sternum and the Clavicles were found carious. A Quack, by suppurating Medicines, had made some Part of it burst, upon which followed a Gangrene, and, in three Days, Death. Each of these Aneurysms, he says, was only a Dilatation of the Artery: But, I must confess, though his Description be very minute and exact, I have still some Scruples upon me, and am not perfectly satisfied, that in this Case there was a mere Dilatation alone of the arterial Coats. For, besides that he says himself, there was not only a firm Adhesion every-where of this Aneurysmal Pouch to the Ribs, the Sternum, the Clavicles, and the Muscles, but a Corrosion of its Membranes in all those Places, where it adhered; these Membranes, which he attributes to his Pouch, might be Portions of the *Mediastinum*, and the *Pleura*, or Expansions of those belonging to the Muscles. But yet further, it may not be absurd, if, in Answer to this, we should affirm, that Humours extravasated may form a particular Membrane to themselves, which is no Part of the Vessels, from whence those Humours are discharged. What we observe every Day of an *Hernia Carnosa*, and *Wens*, consisting of a vast Number of *Cystis's*, each of which has its particular Membrane, and is filled often with a different sort of Substance, may give so much Countenance to this Opinion, that we may at least think it worth considering, before we determine any thing in this Point. The Account *Ruyssch* gives of an Aneurysm in the Thorax, which filled the whole Cavity of it, without any outward Swelling, seems to answer this Idea: For it consisted, he says, of innumerable thick Coats, which lay like so many Plates one over another, between which was inclosed a great deal of coagulated Blood. Thus the Blood lay like Leaves one upon another, so as to form a sort of Polypus, in the Case recited by Mr. *Littre*. This is certain, that we may find Examples of this Kind in *Severinus*, *Marchetti*, and others. Our Countryman *Wifeman* tells us, that he always found both Coats of the Artery open. In short, as Matter of Fact is the best Argument, I can't but observe, that among all the Accounts Anatomists give us of the Dissection of an Aneurysm, there is scarce an Instance upon Record, of a large one, at least, where there was not a Rupture in the Artery, according to the Doctrine of *Paulus*. What has been said will, I believe, be sufficient to shew, how ill founded is that Division, which some Moderns have made of Aneurysms, into true and spurious; whereas the whole Difference lies only in the Form of a Tumour. And if you consider what they have advanced upon this Head, you will find that, as this Distinction is generally wrong in Theory, it signifies still less in point of Practice. *Freind's Hist. of Physic.*

I have inserted the preceding Dissertation, because there are many curious Passages in it, which should not be omitted in a Treatise on an Aneurysm. But in Justice to the Reader I must remark, that Dr. *Freind* has absolutely mistaken the Passage in *Paulus*; for this last Author plainly distinguishes betwixt an Aneurysm by Dilatation, and one by the Rupture of the Artery, in describing the Operation. His Words are *ἐκ μὲν κατ' ἀνωστήσιν ὁ ὕψος ἐγένετο*. *Cornarius*, the Interpreter of *Paulus*, translates this, *Si ex Apertione Tumor factus est*; but how erroneously, the learned Reader will readily see. I am sensible, that, a little before, *Paulus* seems to make a Distinction betwixt an Aneurysm *δι' ἀναστόμωσιν δεσφύας*, and one *κατὰ πῆξιν*. But as no such thing as an *Anastomosis* can be meant here, in the Sense it is generally used in by the *Greek* Writers; and as he seems to explain it afterwards by *ἀνωστήσιν*, when



when he speaks of the Operation, I am inclined to think he means by *Anastomosis* a Dilatation of the Artery.

I must not omit here a Remark of some Importance to Students in Physic, with respect to the *Latin* Translations of the *Greek* medicinal Authors: It is that they are so little to be depended on, that it is very dangerous to quote a Passage on their Authority. I have frequently been misled by their Inaccuracy, when I had no Opportunity of consulting the Originals, being at a Distance from Libraries; and I will not be answerable that I have corrected all the Mistakes they have led me into.

The following Histories of Aneurysms will set their Nature and Origins in a true Point of Light, and prove evidently, that the Distinction of Aneurysms into *true* and *spurious*, is not without Foundation.

#### HISTORY I. By Mr. LITTRE.

A Man of fifty-six Years of Age, who had always enjoyed a good State of Health, sent for me the tenth of *July* last.

I found him by the Fire, in an Elbow-chair, to which he had been confined four Months; for he could not keep in Bed, nor walk, because he was almost choked so soon as he lay down, and could not walk without being in Danger of fainting.

He told me, that he slept very little, that his Sleep was un- sound, and interrupted, that he was grown very lean and weak, and sometimes fainted, even in his Elbow-chair, altho' he took nutritive Food, and in sufficient Quantities; that his Respiration was difficult; that he could not turn nor bend his Neck and Head, without great Pain; that for five Months he had a Tumour upon his Neck, which increased by Degrees, altho' now-and-then it diminished very sensibly; but that this Diminution did not continue long, the Tumour quickly returning to its former Bulk; that it was painful, but especially in the inferior Part, and accompany'd with a continual Pulsation, which for a Month past had been gradually decreasing.

I felt his Pulse, which I found weak; and upon examining the Tumour, found a Part of it on the Neck, and a Part of it upon the Breast. This Tumour was soft, and yielded to the Pressure of the Fingers, but recovered its former Shape, so soon as I forbore pressing it. I felt a small Pulsation in it, which exactly agreed with that of the Arteries; the Colour of the Skin that covered it was natural. All these Circumstances made me conclude, that this Tumour was a real Aneurysm, formed by the extraordinary Dilatation of some Artery.

I asked the Patient, if he had received any Blow upon the Neck or Breast, or if he had strain'd himself in Coughing, Sneezing, or Vomiting, &c. He answered, that he was conscious of having received no Blows, but that for five Days successively he had used great and almost continual Efforts to vomit, and go to stool, which he said were the fatal Effects of Pills a Quack had given him to cure him of a Rheumatism; that three Weeks after he began to feel, towards the Middle of his Breast, a Beating he had not before felt; that six Weeks after a Difficulty of Respiration succeeded this Beating; and that the Difficulty of Respiration three Months after was followed by a Swelling on the Neck; that the Beating, and Difficulty of Respiration, had always insensibly increased, till this Tumour appeared; upon which he no more felt the Beating at his Breast, but began to perceive another Beating in that Part of the Neck where the Tumour was, and that the Difficulty of Respiration did no more increase, but continue the same.

I advised the Patient to take little Food, or what was not very nourishing, or to let Blood now-and-then, if he took a good deal of Nourishment. I also advised him to put a Bandage upon the Tumour, not with a View to compress it, but only to support the Integuments, that by being rendered more capable of resisting the Impulse of the Blood, they might in some measure prevent the Increase of the Tumour.

The Patient having sent for me again fifteen Days after my first Visit, told me, that his Faintings were more violent and frequent. I found him much weaker, and the Tumour larger; there was no more Pulsation, but about three Inches of the Skin towards the Right Armpit was become livid. In the Middle of the discoloured Place there were two Holes almost imperceptible, whence now-and-then proceeded some Drops of Blood. These new Symptoms were probably occasioned by acrid Medicines, which another Quack had apply'd to the Tumour to make it resolve or suppurate, who doubtless knew not the Nature of the Distemper, or was ignorant that real Aneurysms are not cured by resolute nor suppurative Medicines.

Two Days after, a dry Gangrene in the discoloured Part of the Tumour ensued, three Days after which the Patient died. I laid open his Body, which was so lean, that scarce any thing remained but Skin and Bones. I observed nothing extraordinary in the Parts contained in the Cavity of the Abdomen, nor in that of the Cranium, except that there was but little Blood in their Vessels, as also in those of the Face and Extremities.

Before I laid open the Breast with an Incision-knife, I disengaged the Integuments which covered the Tumour, except in the gangren'd Part, where I left them; for it was impossible to disengage them from it, without cutting or tearing a Part of

the Tumour, so firm was their Adherence to one another. I afterwards separated the Tumour from the Neck, from the Clavicles, and from the exterior Parts of the Breast; but it adher'd very strongly in those Places that touch'd upon the Ribs, the Sternum, and the Clavicles, where it was corroded, and the Bones become carious; the rest of the Tumour adher'd but little. The soft Parts situated upon the Breast under the Tumour were full of a serous Humour of a yellow Colour.

I then raised the Sternum with a Part of the Ribs, and the Clavicles that are join'd thereto on both Sides, that I might examine with more Freedom the Parts contain'd in the Cavity of the Breast, and extirpate the Tumour whole.

I observed, first, That the Lungs were dry, wither'd, and collaps'd; and that the Trunk and Branches of the Blood-vessels retained their natural Shapes.

Secondly, That there was a Spoonful and an half of Serum in the Pericardium, and no Fat about the Heart.

Thirdly, That the Trunk of the Aorta, from nine Lines Breadth above the Heart to the Place where it takes the Name of Aorta descendens, had its Coats much thinner, and was very much dilated, so that almost all the Dilatation was made in the superior and anterior Parts; and the three Branches which compose the Aorta ascendens, and which commonly rise from the Middle and Upper-part of the Trunk of the Aorta, were placed in the posterior Part of this Trunk.

Fourthly, That the dilated Part of the Trunk of the Aorta extended itself as far as the Under-jaw, cover'd the Forepart, and the Sides of the Neck fell back upon all the upper and anterior Part of the Breast, from one Armpit to the other, and form'd a Cystis not unlike a Bottle, the Neck of which was within the Breast, and Bottom without. This Cystis was nine Inches and an half long from the Trunk of the Aorta to the Under-jaw; it was two Inches broad at its Origin, and three at its Egress out of the Breast. Its Diameter upon the Neck was betwixt nine and ten Inches, and thirteen upon the Breast. Upon the Whole, this Cystis was half a Foot in Depth at the Neck, and seven Inches and an half on the Breast.

Fifthly, The Thickness of the Sides of this Cystis was so different in different Parts, that it varied in all the intermediate Degrees between the fifth Part of a Line, and ten Lines. Both the thickest and the thinnest Parts were without the Breast; the thinnest lay chiefly in the gangren'd Part, and the thickest in the Part situated upon the Breast.

Within this Pouch there was about two Pints of Blood, of which one third was black, coagulated, and very strongly adhering to its inner Surface; the other third was of a reddish-brown Colour, and half coagulated; the remaining third was liquid, and had almost its natural Colour and Consistence.

Lastly, The internal Surface of the Cystis of the Trunk of the Aorta was smooth and even in some Places, and rough in others. This Smoothness of the Surface was natural, and was owing to the internal Coat of the Cystis being kept entire. The Unevenness of the same Surface was unnatural, and depended upon two Causes, the Erosion of a Part of the proper Coats of the Pouch, and the Adherence of certain Fibres, which did not arise from these of a Polypus of the Heart, but in this, that they were larger, plainer, firmer, and more red. These Fibres composed several Laminæ, that were easily separated from one another.

Having now given some Account of this Man's Distemper enumerated, with the several Symptoms that attended it, and declar'd what I found extraordinary in his Body, I shall endeavour to assign the Cause of the Distemper itself, and account for the most material of its concomitant Symptoms.

The Pills which this Man had taken, being composed of very violent Purgatives, as one may readily suppose from the Effects of their Operation, probably gave Occasion to the extraordinary Dilatation of the Trunk of the Aorta. My Reasons for thinking so are these: First, In the Efforts the Pills produced in him to vomit and go to stool, the Diaphragm, being violently contracted, compress'd the Aorta descendens strongly, and almost intercepted the Passage of the Blood to it; then the Blood sent from the Heart to the Trunk of the Aorta, finding only the Branches of the Aorta descendens open, but incapable to receive it, must of Necessity do Violence to these Branches, in order to force itself a Passage. Now if the Sides of the Trunk were thinner in Proportion, or of a less close Texture than the Branches, the Trunk must of Consequence have been dilated, and not the Branches; and this Dilatation must have been only in the weakest Parts of the Trunk, that is, in its Middle and Left anterior Parts, as has been already observed. These two Parts being once stretch'd by the Impulse, and the extraordinary Quantity of Blood, could no longer resist it, altho' it was only impelled to them with its ordinary Momentum, and in its ordinary Quantity; consequently they must afterwards yield, and be more and more dilated.

The Efforts also occasioned by these Pills might excite a great Agitation in the animal Spirits, determine them to flow into the Heart in greater Quantity, and with greater Velocity than ordinary, and thus render its Contractions more strong and frequent;



quant, so that it must of Consequence have thrown more Blood, and that with a greater Impetus, into the Trunk of the Aorta, forc'd its Sides to dilate themselves to receive it, and thereby have laid a Foundation for the extraordinary Dilatation of this Artery.

The posterior Part of the Trunk of the Aorta scarcely suffer'd any Dilatation, because it was thicker, and of a more compact Texture: But as the Trunk was dilated towards its superior Part, the three Branches, which compose the Aorta Ascendens, must of Necessity have been situated in the posterior Part.

The Sides of the Cyrtis of the Aorta were very thin in some Places, and very thick in others. Two Reasons may be assign'd why the Parts were thin: 1. Because they consisted of nothing but the simple Coats of the Artery. 2. Because of the vast Dilatation which these Coats had suffer'd, by the Impulse of the Blood, and by its Coacervation in the Cavity of the Cyrtis. The Sides of the Cyrtis were thick in the Places where the polypous Fibres were fastened to its inner Surface, and the Thickness was greater or less, just as there were more or fewer of these Fibres, laid upon one another. These Fibres, and even those of the Polypus, must have been formed by the Slowness of the Blood's Motion, by the Grossness and Viscosity of its Parts, and by their Surfaces coming into a great many Points of Contact.

The Slowness of the Blood's Motion might have also occasion'd its being pent up in the Cyrtis, and its Coagulation there: Hence also the weak Pulsations, and the Separation of some Part of its Serum. The Motion of the Blood was slow in the Cyrtis, because becoming gradually larger and larger, and its Bottom being imperforate, the Blood must come out at the same Place where it went in. Now the Blood which had been driven into the Cyrtis by one Contraction of the Heart, was hinder'd from coming out by that which the next Contraction sent to it.

As soon as the Tumor appeared on the Patient's Neck, he felt a Pulsation there; but felt it no more in his Breast, because the Impulse of the Blood, which was the Cause of the Pulsation, made a much greater Effort against the Bottom of the Cyrtis, than form'd the Tumor, than against the other Parts, and because this Bottom was then out of the Cavity of the Breast. The Pulsation by Degrees diminished in the Tumor, in proportion as the Blood coagulated in the Cyrtis, as more polypous Fibres were formed, and as the Contractions of the Part became weaker.

The Difficulty of Respiration increased no more after the Tumor of the Neck appeared, because the Impulse of the Blood being chiefly in a rectilinear Direction, the Cyrtis of the Aorta only increased in Length within the Breast. Thus, when it reach'd the Neck, it increas'd no more in the Breast, consequently the Difficulty of Respiration continued the same.

The Patient was in Danger of Suffocation when he lay down: 1. Because in this Situation, the Blood driven by the Heart into the Trunk of the Aorta, flowing more easily into the Cyrtis of this Artery, than in a vertical Situation, it consequently received a greater Quantity of it on this Occasion. 2. Because the Blood contained in that Part of the Cyrtis, situated externally upon the Breast, fell then into that Part of the Cyrtis within the Breast, and from thence a Part of it fell into the Trunk of the Aorta. Lastly, In the horizontal, or somewhat oblique Situation, the Blood contain'd in the Part of the Cyrtis, that formed the Tumor of the Neck, had a greater Weight upon the Trachea, than in the vertical Situation, and therefore compress'd it more. These three Causes must necessarily produce the Danger of Suffocation in the Man, when he lay down. Towards the last Stage of the Distemper, the Tumor now-and-then diminished, but soon after returned to its former Bigness. The Tumor diminished now-and-then, 1. By the Confinement and Coagulation of the Blood. 2. When the Heart drove little Blood into the Trunk of the Aorta, or that its Motion thither was slow and weak; because then the Blood contained in the Tumor might with Ease fall into the Trunk of the Aorta, and from thence pass into its Branches.

The Tumor might return to its former Bigness, 1. By the intestine Motion and Rarefaction of the Blood. 2. When some Clots of Blood shut up its Passage from the Tumor into the Trunk of the Aorta, in such a manner, that it allow'd fresh Blood to enter, but suffer'd none to get out. The Sides of the Cyrtis of the Aorta were corroded in the Places where they touched the Ribs, the Sternum, and Clavicles; and these Parts of the Bones were become carious, because the Trunk of the Body of this Man being always vertical, a Part of the Blood contained in the Cavity of the Tumor press'd with a greater Weight upon the Coats of the Pouch, and upon the Periosteum of these Bones, compress'd them strongly, and stopp'd, or at least retarded, the Return of the Blood, and of the Lymph, into their Vessels; and thereby gave occasion to the Separation of a Part of the Serum. Now this Serum being always impregnated with Salts, which it dissolved, and carry'd along with it, must have first stimulated and corroded the Coats of

the Cyrtis, afterwards the Periosteum, and then the Bones. The Coats of the Cyrtis in these Places were sooner corroded than in others, because they, being supported there by Bones, were more press'd upon, resisted more, and consequently were more directly exposed to the Action of these Salts. The soft Parts situated upon the Breast, below the Tumor, were filled with a great deal of Serum, which was extravasated by the Pressure of the Tumor on these Parts.

The Body of the Patient was vastly extenuated, tho' he used a nourishing Diet, and that in considerable Quantity, because the Circulation being render'd very slow by the bad Disposition of the Trunk of the Aorta, the Parts of the Blood could neither be sufficiently attenuated, nor propelled with Force enough into the Pores of the solid Parts, in order to furnish them with a sufficient Quantity of Nourishment.

As for his great Weakness, and the fainting Fits that often seiz'd him, they might arise from the same Causes that the Leanness did; besides this, they might have been caused by some Clots of Blood, which falling from the Cyrtis of the Aorta into its Trunk, might, in some measure, shut up some of its Branches. These continued till the Clots were dissolved and attenuated by a fresh Impulse of the Blood, and by the Construction of the Artery. *Mem. de l'Acad. R. 1707.*

#### HISTORY II. By Mr. LITTRE.

A Man of 44 Years of Age dying of an Aneurysm, I laid open his Body to examine the Particulars of this Distemper: This was a true Aneurysm, that is, an extraordinary Dilatation of the Artery, situated partly upon the Neck, and partly in the Breast, parallel to the Spina, and extending itself from the third superior Vertebra of the Back, to the fifth inferior of the Neck, and laid all along upon the Oesophagus; its middle, and superior Parts lay upon the Trachea, and its middle inferior Part upon the Body of the Lungs themselves. It was four Inches long, and above two Inches and a half broad: Where its Diameter was largest, its Thickness was unequal, being thicker in its inferior Part, than in its superior; and in its superior, than in its middle. It was round and oblong, plain and smooth, of a reddish-brown Colour, and so hard, that tho' I press'd it down very much with my Finger, it yielded but little. It adhered pretty close to the Fore-part of the Sternum, to the first Rib on each Side, and to the Skin, and behind to the Muscles which cover the Trachea Arteria; and by its whole Basis it was join'd to the superior Right Part of the Trunk of the large Artery, of which it was only an Extension and Production.

After I had examined the Situation of this Aneurysm, I separated it from every thing to which it was fixed, and laid it open. I made the following Observations:

1. That the Sides were very dense, and of an unequal Thickness, being a quarter of a Line thick in the thinnest, and about a Line in the thickest Places; so that in the last the Sides were little less thick than in the rest of the Trunk.

2. That half of the Cavity of the Aneurysm was filled up with a sort of polypous Flesh, ranged in Laminæ fixed to one another, the outermost to the internal Surface of the Tumor, so that they might have been separated without breaking, if they had been gently handled.

3. That the same Surface of this Aneurysm was smooth in the Places where the polypous Flesh was not fixed; and that it was uneven in the Places where it adher'd. It was probably the Inequality of this Surface that caused the Attachment of the polypous Flesh; and the Inequality was the Effect of the Erosion of the Membrane, occasioned by some Salts separated from the Blood in the Cavity of the Aneurysm, by reason of the Stay it was obliged to make there.

Lastly, The Sides of this Aneurysm formed internally two Bodies of Strings; the one was situated about the middle Part; it was of a reddish Colour, one Line thick, and described only three quarters of the Circumference. The other String was placed in the inferior Part: It was of a whitish Colour: It was much harder than the other, two Lines thick, and went quite round the Aneurysm. At the Place where the two Strings were, the Aneurysm was not so big as in the Places near it, which made a sort of a Strangulation there. All the Trunk of the Aorta, unless where the Aneurysm was, had kept its former tubular Form. It was grown bigger, and its Sides somewhat more dense, but the Thickness seem'd natural.

This Trunk, towards its Origin or Base, was two Inches and six Lines in Circumference, six Inches ten Lines towards its Middle, and two Inches six Lines towards its Extremity. One might observe, in the Thickness of its internal Sides, small stony Laminæ, of a whitish Colour, pretty brittle, of different Bools, and of different Thicknesses. The interior Surface, in the Places where there was none of these Laminæ, had a great many Pores, from whence, when I press'd the Artery, a sort of Lymph came out, which was clear, and a little mucilaginous. This Lymph might have imparted some Fluidity to the Blood, moisten'd the interior Surface of the Artery, made



it smooth and slippery, and secur'd it from the Action of the Salts of the Blood.

The Right Axillary preserv'd its ordinary Bigness, and its exterior Surface was every-where smooth as usual. But the interior, four Lines from its Beginning, was, for half an Inch, unequal; there the Sides were somewhat more dense, and twice as thick as in the Parts near it, and the Cavity narrower in Proportion.

The Left Subclavian was also as big as usual, and its exterior Surface equal; but the interior was unequal in its Beginning, for the Space of three Lines; its Sides, in the same Extent, were somewhat more compact, three times thicker, and there the Cavity was proportionably narrower. In the above-mentioned Places, a faint Tincture of Yellow was observed in the Sides of these two Arteries. Lastly, the left carotid Artery, and the Aorta descendens, were in their natural State.

The Heart was big; the Cavities of its Ventricles were large, but especially that of the Left; their Sides also were somewhat thinner than usual.

The Lungs were full of a thick, blackish Blood: The Trachea, in the Place where the Aneurysm lay, was thicker, more compact, and not so round as in other Places; and the Branches and the Vesicles of this Part contained in their Cavity a great deal of Humour, which was viscous, tenacious, and of a yellowish Colour.

#### REFLECTIONS on the Circumstances above-mentioned.

*First Reflection.* A true Aneurysm being only, as I said, an extraordinary Dilatation of the Artery, one may affirm, that in the Trunk of the Aorta, the Man I speak of, had two true Aneurysms; one particular, the other universal. The former, which has been the Subject of my Observation, was only form'd of a Part of this Trunk; and what remain'd, form'd the other.

*Second Reflection.* These two Aneurysms were produced by the same Causes: The Diminution of the Cavity of the Right Axillary, and the Left Subclavian Arteries, was the occasional Cause of them, the Blood the instrumental, and the Heart the efficient.

It is easy to comprehend, 1. That the Blood, continually thrown from the Left Ventricle of the Heart into the Trunk of the Aorta, finding no more, after the Diminution of the Cavity of these Arteries, the same Facility in its Distribution, must have struck with a greater Impetus upon the Sides of this Trunk, stretch'd them by Degrees, dilated them in an extraordinary Manner, and, at last, have form'd a total Aneurysm, if all their Parts had equally yielded to this Impulse; but a partial one, accompany'd with a total, if some of them were more distended than others, either because they were thinner, or of a Texture less compact, or, perhaps, more exposed to the Impetus of the Blood. It is easy to comprehend, 2. That the Circulation of the Blood, partly interrupted in the Sides of these same Arteries, might cause the Blood to coagulate there; this Interruption might have been occasioned by the Shriveling of the Fibres which compose these Sides, and which may have been stimulated by some extravasated Salts; or by the Elasticity of their respective Membranes and Vessels being weaken'd by the Blood which is continually driven thither by the Heart.

In these Cases, the Blood, not having its free Course, or not being propell'd in its ordinary Manner, must stop, and coagulate in the Cavities of these particular Vessels, dilate them, separate their Fibres, enlarge their Pores, give occasion to a greater Quantity of nutritive Juice to be discharged, to get between the several Laminæ of the Membranes of the Sides, diffuse itself among their Fibres, separate and disjoin them, adhere firmly to them on all Hands, and consequently increase the Thickness of the Sides of these Arteries.

*Third Reflection.* The considerable Diminution of the Cavities of these Arteries was the Effect of the extraordinary Thickness of their Sides, especially since the Thickness was wholly form'd on the inner Side; either because the Circulation had been only intercepted on this Side, or because the external Laminæ had more oppos'd their Separation than the internal. Thus the internal Sides inroached upon the Cavity, and diminished it in Proportion.

*Fourth Reflection.* It may possibly be asked, Whether the extraordinary Thickness of the Sides of these Arteries was a Fault in their original Conformation; or, Whether it was afterwards contracted by any particular Accident. The latter of these Opinions, to me, appears the more probable of the two, for the following Reasons:

1. The Patient, some Days before his Death, told me, that for about eight Months past, he had felt in the Middle of his Breast an extraordinary Heat, Palpitation, and Oppression, which had daily augmented from their very first Appearance. These three Symptoms may easily be accounted for, from the Description I have now given of the Aneurysm itself.

2. The Patient also assured me, that before that Time he had never been sensible of the least Indisposition, or Disorder, in his Breast.

Moreover, the Texture of the Sides of the Arteries was irregular, and their internal Surface uneven. We have therefore no Reason to believe, that this was a Fault of forty Years standing, (for so long the Patient had liv'd) or even of any considerable Number of Years; since in Infants, and even in Adults, we can with Difficulty observe the *Callus of a Bone*, which has been broken about a Year before.

*Fifth Reflection.* The Membranes of the Trunk of the Aorta, which in this Case, as one would imagine, must necessarily be very thin, by reason of the great Dilatation they had suffer'd, had nevertheless preserved their natural Thickness, probably, because in proportion as these Membranes were dilated, their Pores had proportionably opened and enlarged, and more nutritive Juice had insinuated itself into the Interstices of the Fibres, adher'd to their Surfaces, and increas'd the Thickness of the Membranes.

*Sixth Reflection.* The particular Aneurysm must have been formed at that particular Part of the Aorta where I observ'd it, rather than any other, since all its Parts are suppos'd of an equal Thickness, and endow'd with an equal Power of Resistance; and that so much the rather, because that Trunk of the Artery, which is nearly of a semicircular Figure, does not begin to bend itself, till it reaches the Place where this Aneurysm was situated. Thus the Blood thrown out of the Heart must, of Consequence, have produced more considerable Effects upon this particular Part, dilated it more, and brought on an Aneurysm in it.

*Seventh and last Reflection.* The particular Aneurysm must have been formed rather at the superior Part of the Aorta, than in the inferior and lateral Parts; because the Blood, which was the instrumental Cause of it, is directed in its Motion, from below, upwards; and consequently its Action must have been greater on the superior, than any of the other Parts. This upper Part then must of course have been thrust upwards, insensibly dilated, and form'd into an Aneurysm, which would enlarge itself towards that particular Side.

*The principal Symptoms, with which this Aneurysm was accompany'd, accounted for.*

The Patient complain'd of a Weight and Pain in his Head, and of a Weakness of the principal Functions of his Mind. These three Symptoms were produced by one and the same Cause, that is, the Compression of the Jugular Veins, occasioned by the Aneurysms.

The Case stands thus: These Veins being compress'd, the Return of the Blood from the Brain to the Heart is not free and uninterrupted; so that less Blood returning, the greater Quantity must consequently remain in the Head, and the Head itself of course must seem heavy: Because in such a Case there is too much Blood in the Brain, the Coats of its Blood-vessels, its Membranes, &c. must of course be stretched and vellicated, and suffer a kind of Distortion and Dilaceration, in which the Pain consists.

The same Vessels, so distended with Blood, must compress the Nerves situated in their Interstices, deprive the animal Spirits of their free and easy Motions in the Brain, and consequently weaken the Functions and Operations of the Soul, which depend upon these very Motions.

The Patient felt also a Pain in his Neck, Shoulders, and Arms; because the Aneurysm, being situated upon the Jugular as well as the Subclavian Veins, by which the Blood returns to the Heart from these Parts, must compress them, render the Motion of the Blood thro' them slow and difficult, and even, in some measure, stop it in them. The Blood, thus lodg'd in the Veins, must distend and stretch them by its excessive Quantity, and stimulate and irritate them by the Salts which are secreted from the Blood, by reason of its Continuance there; and thus, by these two Means, the Pain in these Parts is excited.

He was likewise troubled with a Difficulty of Respiration and Deglutition, because the Aneurysm being situated upon the Trachea, and Oesophagus, which are, as it were, the Conduits of Respiration and Deglutition, compress'd them so, that it was with Difficulty they performed their respective Functions, especially about the Beginning of the Sternum, where the Passage being surrounded on all Sides with bony Parts, whose Resistance cannot be surmounted, these two Conduits cannot of course elude this Pressure.

The Pulse of the Patient's Right Wrist was small and weak, because, as I have observed, the Entrance of that arterial Branch, whence the particular Branch occasioning this Pulse sprung, being very small, there must, of consequence, be little Blood convey'd into it, and that too must flow very slowly in it, since the Branch itself was too large and capacious, in proportion to the Blood carry'd thro' it. Thus that Blood could neither fill the Cavity of the arterial Branch, and thereby occasion a full Pulse, nor dilate the Sides of it with Force and Impetuosity enough to produce a strong one; so that the Pulse, in his Right Wrist, must have been both small and weak.

The Pulse also of the Patient's Left Wrist was so small and weak, that it could scarcely be felt. We have already observed,



served, that the Entry of the arterial Branch, from which the Branch producing this Pulse sprung, was much less than that in the Right Arm. The Artery where this Pulse is, must consequently receive much less Blood, its Sides be less dilated, and with a proportionably smaller Degree of Force, by which means the Beating of it was almost imperceptible.

Last of all, the Patient fainted, when, being weary'd of holding his Neck and Head upright, he let them fall to one Side.

When the Head and Neck are inclin'd forwards, the Jugular Veins form a kind of Bend, and are, as it were, choaked: When the Head and Neck, on the other hand, are reclin'd backwards, these Veins are too much stretched, and the Diameters of their Cavities are diminish'd; because their Sides must of consequence approach nearer to one another; and when the Head and Neck are inclin'd, either to the Right, or Left Side, the Jugulars of the one Side are bended, whilst those of the other are too much stretch'd.

Now in all these Situations, the Jugular Veins are compress'd, and their Cavities diminished; and the Return of the Blood from the Brain to the Heart is by that very Means retarded and render'd more difficult. If to these Compressions we add that made upon the same Veins by the Aneurysm, we shall find no great Difficulty in comprehending how the Veins of the Brain must be choaked up, and how these choak'd up Veins must compress the Nerves to such a Degree, that, in our present Case, a sufficient Quantity of animal Spirits could not be convey'd to the Heart, in order to carry on its Motion without Interruption. Now this Interruption of the Motion of the Heart is always followed with Faintings, which are greater or less, according as the Interruption is shorter or longer. *Mem. de l'Acad. R.* 1712.

## HISTORY III.

On the 5th of *June* 1721, a Soldier came into the House of Invalids with an Aneurysm, almost of a Year's standing, on the anterior, right and upper Part of his Breast. The external Tumour, which was about a Finger's Breadth distant from the Sternum, seem'd to be divided into two Parts, one of which possessed the intercostal Space between the second and third Cartilages of the Sternum; and the other that between the third and fourth. This Aneurysm rose several Lines above the Level of these Cartilages, altho' they were sensibly more arch'd, and project'd farther, than those of the Left Side, which was occasioned by the quick and continual Beating of the Aneurysm. They were even visible at some Distance; and all the adjoining Parts were so sensible of Pain, that the Patient could scarce suffer his Cloaths to touch them. He could not call to Mind any external Accident, which might be assign'd as the Cause of the Disorder; however, he spun out his Life under all the Agonies of his Disease, till the 22d of *October*, when Death put an End at once to his Life and his Pain.

Mr. *Morand*, the younger, laid his Body open, and found the Aneurysm in the Aorta. But a Circumstance which appears somewhat miraculous, was, that the Aorta, already preternaturally enlarg'd at the Place of its Egress from the Heart, about an Inch farther, form'd itself into a large Bag, thirteen Inches in Circumference, and capable of holding a Pint of Water. Afterwards it contracted itself in order to continue its ordinary Course, send forth its four superior Branches, and form its Cross; and at its upper and anterior Part, it was very closely united with that Part of the Pleura which covers the Cartilages of the Sternum.

Two Polypi fill'd the Cavity of the Aneurysm. The one began at the lower Part of the Aorta, cover'd the internal Surface of that Part of it which is next the Base of the Heart, and afterwards form'd a kind of Plate, pierc'd with a Hole, parallel to the Opening of the Left Ventricle. The other Polypus covered the superior Part of the Aorta, which adher'd to the Pleura. They both had this Circumstance peculiar to them, that the red Substance, of which they were compos'd, serv'd as a kind of Ground-work for a beautiful Contexture of small, white Filaments, which, by their Ramifications, intersected one another, and represented various Figures, such as Rays darting from a common Centre, Lozenges, Nets, and the nervous Ramifications observed on the Leaves of Trees. The red Substances were undoubtedly Concretions of Blood, form'd by its Congestion in the dilated Aorta. But if it should be ask'd, what the white Filaments were; I answer, They were probably the lymphatic and nutritive Parts of the Blood, separated from the rest, by its Stay in the Bag, and again united, as much as their Nature would admit of. If, on the other hand, it should be asked, why these lymphatic and nutritive Parts of the Blood should rather unite themselves in Filaments, than in any other given Form; I answer, That tho' we cannot account mechanically for this Phenomenon, yet we may reasonably suppose, that they are naturally dispos'd so to do; and that this Effect is very agreeable to their Functions, and confirmed by the Formation of new Membranes, and Cysts, which are found upon certain Occasions.

Mr. *Morand* observed how surprisngly skilful Nature was, in finding out Expedients for her own Relief; and drawing, as it were, from the very Disorders into which the animal Machine is thrown, the Means of preserving herself, or, at least, of warding off her Destruction. The Polypuses, as is usual, occasion'd a great Inequality in the Patient's Pulse; sometimes an Intermittence, and at other times too great a Frequency; but without these Inequalities in the Pulse, the Disorder would have been still greater, since the dilated Aorta would have received a larger Quantity of Blood, than the Heart would have been able to propel; the Polypuses, by filling the Cavity of the Aneurysm, made amends for its excessive Dilatation, and directed the Course of the Blood thro' a Canal which had all along been kept open. In the two Polypuses also, a Part of one of which was pierc'd with a Hole, this Hole was parallel to the Opening of the left Ventricle, thro' which the Blood flows from the Heart. The upper Part of the Aneurysm adher'd to the Pleura, and, by its Union with it, had so fortify'd the Membrane of the Aorta, as to prevent its breaking by the Action of the Blood, and save the Patient from an Effusion of Blood in the Cavity of his Breast, which would have proved immediate Death. *Hist. de l'Acad. R.* 1721.

## HISTORY IV.

A certain Surgeon gave our Society an Account of a very surprisng and uncommon Case: A Man, as he inform'd us, who had gone a hunting, happening to turn his Head hastily, and with some Degree of Violence, to the Right Side, was not able, without a good deal of Pain, to return it to its natural Situation; ever after which Accident he was so much indispos'd, that he could neither swallow nor breathe without a very great Difficulty. About fifteen Months after the Accident, the Patient died; and upon searching for the Cause of his Disorder, we found the Aorta very much dilated, a large aneurysmal Cystis in the Right Subclavian, the Oesophagus and Trachea strongly compress'd by this Cystis, the Clavicles removed out of their natural Situation, and a Piece of Bone, which was wanting in the Sternum, included in the Cystis. 'Tis no easy Matter to account for the Bone's being lodg'd in this Place. *Hist. de l'Acad.* 1700.

## HISTORY V. By Mr. MALOET.

On the 26th of *June* last, in the Afternoon, a Soldier of 45 Years of Age came into the Royal Hospital of Invalids, where I saw him the same Day; and upon asking him for what Disorder he came there, he told me, that for six Weeks past he had been troubled with a Defluxion in his Breast, for which he had been blooded six or seven times; that he had cough'd a great deal, and spit Blood, and that his Cough, and a Pain in his Throat, were still remaining. I look'd at his Neck to see whether there was any Rising or Elevation about it, and found on the lower and anterior Part of it a Tumour as large as a Nut, immediately above the Cavity of the Sternum, on which it rested: It was soft, round, and smooth. The Skin which cover'd it retain'd its natural Colour. It had a very perceptible, and a very regular Pulsation, and yielded to the Pressure of one's Finger; but restor'd itself to its former Dimensions very quickly, and with a kind of Force. From all these Symptoms I easily concluded, that it was a true Aneurysm; and suspected it to lie at the superior Part of the Aorta, which I imagin'd to be lengthen'd out independentl of the Aneurysm. I asked the Patient how long he had been afflicted with that Tumour, and whether he was sensible of any Circumstance, which might have possibly laid a Foundation for it.

He told me, that he had only perceived it since the Defluxion in his Breast; and that he could think of nothing to which he could so properly attribute it, as to the Efforts he had made in Coughing.

As his Cough remain'd as yet, I order'd him composing Medicines; and because his Pulse was a little too frequent, I reduced him to Broths and Ptisans; and order'd him to abstain from making any Kinds of Efforts, because of the Aneurysm.

The Patient having continued under this Regimen till the 29th of the same Month, he asked me one Morning, when I made him a Visit, if it was by my Orders that he had no Wine allow'd him: When I told him it was, he said, I cut his Throat, as it were, by discharging him the Use of it: That as he had work'd at his Business in the Quarries, he had been accustomed to it; and therefore begg'd, that I would let him have some Allowance of it. Finding his Pulse calmer than it was on the Day in which he came to the Hospital, I made him be marked among the Number of the Patients who were to have Wine.

I had no sooner reached the Bed next to the Patient's, than I heard behind me a Noise, as it were, of one vomiting. Upon returning, I found the Man, with whom I had just then parted, discharging Torrents of Blood from his Mouth. I ran to his Assistance, as did likewise the Apothecary of the Hospital, who attended me during my Visit. But as he cover'd not only himself, but every one that came near him, with Blood,

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the first Step we took, was with all Haste to provide a Vessel for receiving the Blood, which he discharged without any Effort, in great Quantities, which came up immediately upon the Back of one another. As I thought the Case very desperate, I desired a Sister of the Infirmary to call a Priest with all possible Haste. The Patient, having laid himself on his Bed, in the Posture which he judged most advantageous, discharged great Quantities of Blood in the Vessel, which the Apothecary held for that Purpose, and expired in a Moment, before the Priest, who was in the Hospital at the very Time the Accident happened, could have an Opportunity of discharging the Functions of his Office, with regard to his Soul; for there was scarce a Minute betwixt his Death, and the Time of his beginning to throw up the Blood, which was frothy, and of a vermilion Colour.

'Tho' I expected very fatal Consequences from the above-mentioned Tumour, yet, I must own, I did not imagine the Patient's Death so near at hand; and much less did I suspect, that the Aneurysm should have been discharged by the Mouth.

But there was no Reason to doubt of its having burst, and of the Patient's having lost all his Blood by that Means, since upon his Death the Tumour of his Throat disappeared entirely. But how did it appear possible, that this Blood should have reached the Mouth, since nothing is more evident, than that the Tumour was a dilated Artery, none of which have an immediate Communication with the Mouth, nor with any of these Canals by which this prodigious Quantity of Blood could be furnished? I saw plainly, that the Blood must have forced a preternatural Road to itself; but it could not have possibly discharged itself so suddenly without two Openings, one in the Artery, where the Aneurysm was, and the other in the Trachea, which I judged the only way by which the Blood could reach the Mouth. This too appeared somewhat hard to conceive, since the Fluid contained in the Tumour did not seem capable of corroding the Sides of the Canals; and even tho' it had, it must have pierced the Sides of the Aorta, before it could produce any Effect upon those of the Arteria Trachea; in which Case, that is, after it has pierced this Artery, it must have thrown itself into the Cavity of the Breast, and by that very Circumstance become incapable of corroding the Trachea, or coming through it to the Mouth.

Upon laying the Patient's Body open, my Difficulties were removed. This I did the very Night on which he died, and, before I began the Work, I observed a kind of bloody Froth flowing from his Mouth, and the smallest Remains of the Tumour on his Neck were not to be seen. I opened the Breast, and after having disengaged the great Artery, and its three large Branches, the Right Subclavian, the Left Carotid, and the Left Subclavian, I found something peculiar and uncommon in the Aorta; for it was dilated in the upper Part of its Arch, between the Right Subclavian, and the Left Carotid, betwixt which, just at their Origin, there was, contrary to what commonly happens, a Space of six Lines. The Right Subclavian Artery was larger and longer than ordinary; for it was about an Inch in Diameter, and two Inches long, before it sent forth the Carotid. There was on its upper Part, where it springs from the Aorta, a Cystis, which had form'd the Tumour, which appeared on the lower Part of his Neck. Hence it was, that this Aneurysm was not, as I had suspected, altogether in the Aorta, which nevertheless contributed somewhat to its Formation; for it was really dilated, or lengthened out, in its upper Part, as I had suspected.

The Cavity of this Cystis was about two Inches in Diameter every way. It was placed before the anterior Part of the Arteria Trachea, between the tenth and fifth cartilaginous Segments inclusively; so that it covered six of these Segments, and in its posterior Part adhered very closely to them, as it likewise did on the Left Side, which I did not touch.

I endeavoured to disengage it from the Arteria Trachea, but it opened as soon as I touched it with the Knife, though I did it with all the Gentleness I possibly could. Finding that it was not possible to separate the whole Cystis, which I at first intended, I enlarged the Orifice which I had made in its Right lateral Part, that I might look into its Cavity. I found nothing in it, but was surpris'd to see the Cartilages of the Arteria Trachea discovered. I endeavoured to find out the posterior Side of the Cystis, or dilated Artery, which, in Consequence of its Situation, should have been opposite to the said Cartilages; but I found no Side there, except a little Shred, which seemed to be very weak, decay'd, and even torn. I also observed, that the Cartilages upon which the Cystis touched, were weaker, flatter before, and less projected than the rest. And lastly, I observed between the sixth and seventh of these Cartilages, on the Right anterior Part of the Trachea, a Hole almost round, of two Lines transverse, and two and an half of vertical Diameter.

This Hole was made in the ligamentous Membrane, by which the cartilaginous Segments are tied to one another; and it even bordered upon the sixth and seventh, which by that means had become a little arched at that particular Place.

Upon sounding the Hole with a Probe, I found it passed into the Cavity of the Arteria Trachea, but yet in such a manner, that it was larger at its Entrance, than in any other Part. I also judged it proper to take a View of the Stomach, which when I did, I found it filled with Clots of Blood.

I was then no longer at a Loss to judge which way the Blood discharged by the Mouth had come, and why it had been thrown up so quickly, and in so large Quantities; and even why it had not been thrown up sooner, though the Hole in the Trachea seemed to be of a considerably old Date.

'Tis not, in my Opinion, to be doubted of, but the Blood passed, by means of this Hole, from the Cystis into the Trachea; thence it must needs either mount up into the Larynx, or descend into the Bronchia; but the Air included in them prevented its taking that Course, tho' it was carried thither by its own Weight; so that it was forced to the Larynx, and from thence towards the Palate, from which it was discharged by the Mouth.

Though the Hole seemed to have been made in the above-mentioned ligamentous Membrane, some time before the Patient's Death, or rather before his Hæmorrhage, yet the Blood did not pass from the Cystis into the Cavity of the Trachea, because the internal Membrane of that Canal had remained entire, block'd up the Hole on the Side of the Cavity, and prov'd, as it were, a Defence to its Entrance. But this Membrane being broken and dilacerated, the Moment before the Patient died, the Blood contained in the Aneurysm, or rather that of the Subclavian Artery, found nothing to oppose its Passage into the Trachea.

I say this last-mentioned Membrane must have been first distended, and then broke, which could not well happen otherwise, since, being pretty lax, it must have yielded, and be driven inwards by the Blood, which came from the Subclavian Artery.

This appeared from the Form of its Opening, the Lips of which projected considerably into the Cavity of the Arteria Trachea; so that by laying them back towards the Hole formed in the ligamentous Membrane, they closed up the greater Part of it.

It now remains, that we consider how this Hole may have been made, between these two Cartilages, in the Membrane by which they are tied to one another; and this is not very hard to be conceived; for the posterior Side of this Cystis, which adhered to the Arteria Trachea, having been stretched, and at last broken, by the impetuous Efforts of the Blood, which arrived continually at it; and even destroyed, since it was very slender, and on one Side, apply'd to Substances harder than itself, and on the other, exposed to the Shocks of the Blood thrown very forcibly upon it, the Blood acted immediately upon the Trachea, but was not thrown forth from the Cystis, by reason of its close Adherence to the Trachea, which served as a Side to its posterior Part. This same Blood, whether by its Serosity, or some of the saline Parts, or by the Effort with which it had been thrown into the Cystis, had gradually wasted the Interstices of the cartilaginous Segments, which concurr'd to form the Trachea, and had produced this Opening betwixt the sixth and seventh of them, because that Place might have possibly been weaker, or more exposed to the Efforts of the Blood in Consequence of its Direction.

But this Opening was not formed instantaneously, but by little and little. It was begun, and even pretty well advanced, at that time the Patient spoke to me with so much Resolution, and accused me of cutting his Throat, as it were, by debarring him the Use of Wine. He did not certainly at that time think, that he was so near the Point of having it really cut, or, at least, pierced. The Blood had already broken through the ligamentous Membrane betwixt two of the cartilaginous Segments of the Trachea, and had arrived at the internal Membrane of that Canal, which was now the only Obstacle left for it to surmount in its Passage. At this particular time, it might have been truly said, that the Life of this Soldier hung, as it were, by a Hair, since it only depended on the shorter or the longer Time, which so slender a Membrane might be supposed to hold it out against the Shocks of the Blood, supplied by the first and largest Branch of the Aorta. It was scarce possible, that such a Membrane could, for any considerable time, hold it out against a Force capable of overcoming a vastly greater Resistance: Thus it was broken in a Moment; and that was the very Moment preceding the Death of the Patient.

As the Communication betwixt the Aneurysm and the Arteria Trachea had become free and uninterrupted by the breaking of this Membrane, the Blood contained in the Aneurysm, or rather in the Subclavian Artery, passed with all its Impetuosity into that Canal, and was from it convey'd, as I have already said, through the Larynx towards the Palate, by which it was discharged thro' the Mouth, as long as the Patient had Strength enough to sit up; but being obliged to lie down, or rather falling backwards, by reason of the extreme Weakness occasioned by such a Loss of Blood, and the Blood, in the mean time, continuing to flow towards the Palate, a Part of it then fell



fell into the Pharynx, and from thence into the Oesophagus and Stomach; this it might the more easily be supposed to do, because the Posture of the Patient favoured its Direction that way, by its proper Weight, whereas it opposed its Discharge by the Mouth. Hence we may account for the Blood found in the Stomach, where it was coagulated.

The Effort of the Blood, which flow'd from the Subclavian Artery to the Aneurysm, beating continually and immediately upon the Cartilages of the Arteria Trachea, could not fail to stretch them, and render them flat and weak, as I have observed they were.

This Aneurysm seems to me to have been the Consequence of the Augmentation of the Diameter of the Right Subclavian Artery, from whatever Cause such an Augmentation might proceed; for as the Diameter of this Artery could not be augmented without its Sides being at the same time distended, and consequently rendered thinner, which they were in Reality, in proportion as they were dilated, it is plain, that these Sides, becoming thinner, must, of course, have less Force to resist the Impetuosity of the Blood, which was carried towards them, and which was so much the greater, as it came immediately from the Aorta. These Sides then were forced to yield, and stretch more in some Places than in others, that is, in those Parts most which were most exposed, or weakest; and as they lost their proper Tone, and a Power of restoring themselves, the Cystis, or Cavity of the Aneurysm, was by that means formed.

The Efforts which this Soldier used to make when working at his Trade in the Quarries, might have laid a Foundation for this Augmentation of the Diameter of the Right Subclavian Artery, and by that means rather prove the Cause of the Aneurysm, than those Efforts which he made in Coughing, during the Defluxion of his Breast, to which he attributed it; because as in the Work in which he was employed, the Muscles of the Arms must be violently contracted, and remain for a long time in that State, they could not fail to intercept the Course of the Blood in those Arteries, which supply them with it; and this must have happened more remarkably in the Right, than in the Left Arm; because the former makes stronger and more frequent Efforts than the latter. The Course of the Blood being intercepted in the Arteries of the Right Arm, it must of course have stopped in the Trunk of the Subclavian, from which these Arteries take their Origin, and which was free from all Compression. The Blood being stopped in that Trunk, and rendered incapable of circulating forwards, in proportion as it was propell'd by the Heart, and accumulated there, it must have dilated the Vessel, and occasioned an Augmentation of its Diameter.

It is very rare, that a true Aneurysm opens, and kills the Patient in so short a time, especially when it is not more considerable than this was; for one may see very large ones supported by Patients for a great Number of Years, whereas this open'd in about the Space of six Weeks.

The Circumstance, which, in my Opinion, best accounts for this, is, that the Aneurysm touched upon the Cartilages of the Arteria Trachea. I have already taken Notice of the Part these Cartilages had in destroying the posterior Side of this Cystis, and consequently in its becoming open.

It is perhaps still rarer, that one should discharge, by the Mouth, Blood, which comes immediately from the Trunk of the Subclavian Artery. As I never saw another Instance of it, and have not met with a Case of the like Nature in all the Authors I have read with that very View, I thought proper to communicate the Particulars of a Case so singular. *Mem. de l'Acad. R. 1733.*

#### HISTORY VI. *From the Philosophical Transactions.*

In the Year 1685. a Servant to my Lord Culpeper got a Fall, which caused him a heavy Pain in the Breast for a while. About a Month after this Accident, a Musket burst in his Hands, and gave so violent a Recoil against his Right Side, that it made him spit Blood immediately, and continued for six Months. A Year after, he began to feel a Pulsation on that Side, and then he spit Blood again, which continued but only in the Spring and the Fall, till he died.

He bled likewise by the Nose twice a Year, for a Month every time. In 1695. or 1696. a Tumour began to appear under the Right Nipple, which, growing by little and little, came to an extravagant Bigness, and at last, after using some emollient Ointments upon it, (of its own Accord) it broke suddenly, and he soon after died. Mr. Lasage open'd the Body, and found that two of the Cartilages of the Ribs were worn off, by the continual Pulsation of the Tumour: Part of the *Sternum Bone* was also worn off, by the same Cause. The Dilatation of the Artery began precisely on its Trunk next to the Heart, before it divided itself into the ascending and descending Trunks; and though there is but a little Place, yet it did dilate itself so excessively, that the Bag did fill up the whole Cavity of the *Thorax* on the Right Side, and pressed the Lungs so much, that they were thereby much diminished; the Bag by the Outside did adhere to the *Mediastinum*, to the *Dia-*  
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*phragma*, the *Pleura*, and to the *Sternum*, in which it had digg'd two great Holes, so strong was the Impulsion: The Inside of that Bag was lined, almost all over, with bony *Laminae*, some larger, some lesser, like so many Shells; the Heart was mightily relaxed, insomuch that it was twice as large as it ought to be; and amongst its Fibres there were some Stones, like them which are sometimes found in the Lungs of scrophulous Bodies. *Philosoph. Trans. Abr. Vol. 3.*

#### HISTORY VII. *From the Philosophical Transactions.*

We had lately an Opportunity of examining into the Nature of an Aneurysm, by means of a Patient, who was taken into *St. Bartholomew's* Hospital. She was about four-and-thirty Years of Age, and of a good Constitution; but there was a Tumour, bigger than one's Fist, which began from the upper Part of the *Sternum*, between the Origins of the *Musculi Mastoidei*, and extended itself to the *Pomum Adami*, almost up to her Chin, and possessed all the Breadth between the two *Carotid Arteries*. The Account that she gave of the Occasion of it was, that her Husband, being a passionate Man, took her by the Throat one Day, as she was crying out upon some Occasion or other, and griped her so hard, as almost to throttle her. She was then with Child, and immediately perceived something of a Pain a little above her Heart; and a few Days afterwards there appeared a Tumour about the Bigness of the Top of her Finger, just above the *Sternum*, and so continued without Increase or Pulsation, till she was brought to Bed, when it began to be enlarged, upon her having a hard Labour, agreeable to what Practitioners have observed, that Accidents of this Nature often happen to Women in Labour. This was about four Years since, and from that time it had continued gradually increasing, until it was arrived to almost the highest Pitch of Extension; and she had all along been troubled with a Palpitation, Pain, and Streightness within the *Thorax*, great Interruptions in her Rest, and frequent Sinkings, together with a constant Beating along the Chest up to the Tumour; in which likewise there was a Pulsation correspondent to the regular Pulse, shaking the Tumour at every Stroke, and manifest to the Eye as well as the Touch. Notwithstanding this, she was otherwise hearty, had her *Menfes* regularly, had a good Appetite, and was mostly chearful and lively, and never more so than just before the fatal Period of her Tumour. The *Apex* of the Tumour, which was towards the Middle, in the prominent Part of it, was beginning to mortify, through an Over-distention, and the common outward Integuments were the first that seemed to suffer: But the Distention continuing, the Mortification increased, and was quickly communicated to the outer Coat of the Artery likewise, which therefore sloughed off as well as the other Integuments, and being at length worn away, just at the Extremity, made a sudden Aperture, about twice the Bigness of a Goose's Quill. The Blood instantly gushed forth, as from a Stream or Torrent, and the poor Patient died in less than a Minute.

Upon opening the Body, we began from the Heart, in which there was little remarkable, except that the Left Ventricle was somewhat larger, as were likewise the *Columnæ Carneaë*, than they naturally should be. There was little observable likewise in the *Aorta* itself, till we came to the *Curvature*; upon the upper Side of which was the *Basis* of the Tumour, forming a cylindrical Stem of four Inches long, while in the Cavity of the *Thorax*; but extending itself into a circular Form of a larger Dimension, when it became external. Upon opening the under Part of the *Aorta*, opposite to this Basis, and carrying the Incision throughout its whole Extent in the *Thorax*, the Trunk retained its usual Form and Dimensions, and was not at all dilated; but in the upper Part above described, just on this Side the Orifice of the Right *Subclavian Artery*, (which was nearer than usual to the Orifice of the Left *Carotid*) there was a preternatural circular Aperture of half an Inch Diameter. Upon dividing this Aperture, and carrying on the Incision to the *Apex* of the Tumour, its whole internal Substance appeared. The Edges of the Aperture, at the Basis of the Tumour, were hard, and almost cartilaginous, and seemingly the Remains of thick and fleshy Fibres, which, upon a nicer Inspection, they appeared to be in Fact; viz. the broken Fibres of the Inner, or what is commonly called, the Muscular Coat of the Artery, which terminating here, the Tumour immediately increased to two Inches Diameter, and continued of that Dimension, till it came out of the Neck, between the Clavicles; but then extended itself circularly to a Diameter of above three Inches, the Covering of which was nothing else but the outer Coat of the same Artery, all along dilated from the Base, even to the Extremity of the Tumour. The Cavity was, for the most part, filled with a sort of *Polypus*, or *Sarcoma*, in which, nevertheless, there were three Sinuses, or Passages, that were kept open by the constant Influx of the Blood, and communicated near the *Apex* with one another, (that in the Middle being the largest) and terminating in one towards the Extremity of the Tumour, not far from where it broke. *Philosoph. Transact. abridg'd, Vol. 8.*



I shall conclude these Histories of Aneurysms with the following Remarks by Dr. *Nicholls*, which I find in the *Philosophical Transactions*, because they seem to set the Nature of these Tumours in a just Light.

An Aneurysm is, by all Authors, defin'd to be a soft, circumscribed Tumour, in which there is a sensible Pulsation of the Artery, to which it adheres. As it is certain, that any Tumour, of what Kind soever, lying on, or adhering to, any considerable Artery, must necessarily be mov'd by every Pulsation of such Artery; so this Pulsation (unless understood in such manner as I shall hereafter explain) can no ways be admitted as the true Diagnostic, whereby to specify the Difference between this kind of Tumour and any other. An *Aneurysm* is found most commonly to succeed Falls, Vomitings, Labour-strains, and such other Motions or Indispositions of the Body, as, by compressing the great Branches of an Artery, any ways stop the progressive Motion of the Blood. It is obvious, that, as the Section of the Artery, above the Compression, must, in its natural State, be sometimes very incapable of containing at once the whole Quantity of Blood, which ought only to have pass'd thro' it successively; and as the Force of the Heart may frequently exceed the Resistance it may meet with from the Coats of the Artery, so the Consequence of such a Stop to the progressive Motion of the Blood, may occasion either a Rupture of the Artery, or a Distention of the Artery without a Rupture, or a Rupture of the internal Coats of the Artery, and a Distention of its external. A Rupture of the large Branches of the *Aorta* necessarily allows so plentiful Effusions of the Blood, as to occasion immediate Death; while the Capillaries may be burst, without any other Injury but a slight *Ecchymosis*; and the Tumour form'd by the Effusion from them, will be diffused and superficial. A Rupture of the mean Branches (such as descend between the *Tibia* and *Fibula*, the *Radius* and *Ulna*, &c.) will be attended with a considerable Effusion of Blood; but as the Blood will find a Passage between the Interstices of the Muscles, it will never form a circumscribed Tumour. However, the Effusion being continued, *per Saltum*, thro' the ruptured Artery, will give a faint Pulsation, and consequently some Resemblance of the *Aneurysm*; for which Reason it is, by some Surgeons, term'd a *Bastard Aneurysm*. Whether or no an *Aneurysm* be a Tumour form'd by the Dilatation of the Artery, or by a Rupture of the internal Coats of the Artery, and a Distention of the external, has for some time been a Matter of great Dispute; each Party protesting (perhaps too unjustly) against the Possibility of the other's Opinion: As to the Possibility of an Artery's being dilated, it stands supported by Reason and Autopsy. We find the Uterine Arteries constantly increased in Thickness and Diameter, in proportion as the *Uterus* is distended; and many Cases of Palpitations of the Heart have been attended with great Dilatations of the *Aorta*: Instances of which I have seen both in human and brute Subjects. Such a Dilatation will necessarily follow a constant or frequent Pressure on any Part of the *Aorta*, provided such Pressure does not entirely stop the progressive Motion of the Blood thro' the *Aorta*: But, on the other hand, such a Dilatation will always retain somewhat of the Form of the Artery. The Resistance will not be every way equal, as in the extravasate Tumours; because the quaquaversal Pressure of the Blood will be controul'd by the Pressure on the Artery, and the Resistance from the Coats of the Arteries, so as necessarily to form a Cylindroid; and the Consequence of such a Dilatation cannot (if consider'd abstractedly from its Pressures) be worse (if so bad) than from a varicose Vein. Again, they who conceive an Aneurysm to be a Rupture of both Coats of the Artery, oppose their Opinion who imagine the internal Coat to be ruptured, and the external to be distended, by comparing the two Coats in Question, and urging, that, as the internal Coat is so much thicker than the external, it seems impossible the last should be sufficient to resist a Force capable of destroying the first. Were these two Coats similar, as to their Structure, we might then compute their Strength by their Thickness, and this Argument would be of much greater Force than at present it can be; because the internal Coat being composed of annular *Fasciculi*, whose Sides have but a very weak Cohesion, their Power of resisting will not be measurable by the Strength of those *Annuli*, but by the Force with which they adhere laterally. And, on the other hand, the external Coat being composed of Fibres equally interwoven, and of a quite different Composition, it may either exert a greater Resistance, or be capable of much greater Dilatations than the internal: But, that Autopsy may evince the Truth of this Difference in the Strength of these Coats, it will be found, by any one who pleases to try the Experiment, that by blowing into the Pulmonary Artery, the internal Coat will soon burst, and the external form itself into aneurysinous Tumours (which Experiment was accordingly tried before the Society, to their Satisfaction).

Upon considering all which, and having, by Order of the Society, both privately and publicly examined an *Aneurysm*, which I find to be round, like other extravasate Tumours, unless when controul'd by any notable Pressure, and that the Sac-

culus does not divide into Coats, as the Artery from whence it arises does, I am induced to think, that this Aneurysm is a Tumour form'd by the Blood's being forced thro' the *Ligamentous*, or what is call'd the Muscular Coat, and distending the membranous or outer one: And because the Impetus of the Blood will, as it were, perpetually press through the Aperture into the Tumour, and be again (at least in Part) return'd by the Elasticity of the external Coat; therefore such a Tumour will rather have a pulsatile Dilatation, than a Pulsation, for its true Diagnostic. *Phil. Trans. Abr. Vol. 8.*

As Aneurysms frequently happen from Accidents in Bleeding, I shall first specify the necessary Method of proceeding, in order to prevent an Aneurysm, when a casual Wound of an Artery, in Phlebotomy, makes it suspected, that one may ensue.

In letting Blood, it sometimes happens, that the Artery is cut instead of the Vein, or that the Vein and the Artery are wounded at one and the same time. This Misfortune generally happens, when the Surgeon intends to open the *Basilic Vein* in the Arm; for near this Vein there usually lies some large Artery, and generally the principal one in the Arm (though I have often observed the large Artery near the Cephalic Vein); the pricking of this brings on, for the most part, a terrible Effusion of Blood, an Aneurysm, or even, as *Hildanus*, some others, and I myself have observed, a Gangrene of the Arm, from the Circulation of the Blood being stopp'd in it; or, which is still more terrible, Death itself, from an immoderate Effusion of Blood. Now, that an Artery is wounded, may be pretty well known from these Signs:

The Blood bursts from the Orifice at certain Intervals, and, as it were, by Starts; and springing forth, in a more violent manner than when no such Accident happens, it describes certain Arches in its Progress. Its Colour is also more red and florid, than that which flows from a Vein open'd as it ought to be. Besides, if the Part below the Orifice is press'd with the Finger, the Blood bursts forth with the greater Impetuosity; but if any Pressure is made above the Wound, the Impetus of the flowing Blood is diminish'd. The Reverse of all this happens when a Vein is duly open'd; but if at any time this Misfortune should happen, 'tis reasonable the Surgeon should be apprised of the Danger that attends it, that he may both preserve such a Presence of Mind, and Turn of Thought, as may enable him to take proper Measures, and conceal, if possible, his Error both from the Patient and the By-standers. He must therefore diligently observe, in the first place, whether the Blood flows freely from the Orifice, or whether it insinuates itself copiously between the Muscles and the Skin; if it flows freely, a very large Quantity of Blood is to be taken from the Patient, and even till he faints away. The Patient, in the mean time, and the By-standers, are, according to the Advice of *Dionis*, to be artfully wrought up into a Persuasion, that the Person abounds too much in Blood; that 'tis too hot, and, as it were, boiling; and that, in consequence of these Circumstances, his Case calls for so large an Evacuation: For since the Blood ceases to flow when the Deliquium comes on, the Wound may be conveniently tied up, and the Abundance or Impetuosity of the Blood, by that very Means, hinder'd from bursting out afresh, producing an Aneurysm, or at least from preventing the Agglutination of the Wound. In the mean time, the Surgeon ought, if possible, to catch an Opportunity of privately conveying a Piece of Money into the first Compress, which he is to apply immediately to the Wound, for its more effectual Compression; then, after cleansing the Patient's Arm, he is to apply a second Compress, broader than the first; and even a third, broader than the second; and all of them sufficiently thick: And then, bending the Patient's Elbow, he is to apply a double Bandage, both with a View to retain the Compresses more firmly, and compress and agglutinate the Wound of the Artery more effectually. These Bandages are to be applied in the same manner as in common and ordinary Venesections. It is also highly proper to apply a narrow, thick, and long Compress upon the Tract of the *Brachial Artery*, all along from the Wound to the Arm-pit; and this Compress is to be fix'd with a Bandage applied in obtuse spiral Wreaths, that the Brachial Artery being thus gently compress'd, the Impetus of the Blood upon the Wound may, by that means, be considerably diminish'd: And that the By-standers may not so much as entertain the remotest Suspicion of the Error committed, they are, with a grave and serious Air, to be told, that it was absolutely impossible to stop the impetuous boiling Blood of the Patient, without the Assistance of so artful and curious a Bandage. *I hope Father Parenin, when he translated Dionis's Surgery into the Tartar, or modern Chinese Language, left out this Advice above-mention'd; otherwise it would give the Chinese a horrid Idea of the Villany of the European Surgeons, which Charity obliges us to presume they are seldom guilty of. As the most political thing a Surgeon can possibly do, is to be honest, I should advise him, in the Case before us, to discover fairly the Accident, that further Advice and Assistance may be immediately procur'd; for the Welfare of the Patient is of infinitely more Importance, than the Reputation of any Surgeon whatever.* Instead of the first Compress, arm'd with a Piece



Piece of Money, a little chew'd Paper, especially if immerfed in melted Greafe, and well wrung out, may be applied to the Orifice with the fame, if not more Propriety; and fome Comprefles, becoming gradually broader, as in the other Cafe, are to be clapt upon it, and fecured with the fame Bandages, and in the fame manner.

After this is over, if the Patient has not recover'd from his Deliquium, he is to be rous'd, by applying to his Nostrils a Linen Cloth soak'd in Vinegar or *Hungary Water*, by pouring a little Wine into his Mouth, and by opening the Windows, that he may enjoy the Benefit of the free Air: When this troublefome Scene is clofed, Reft, together with a fpare and flender Diet, is carefully to be recommended to the Patient: He is even to be told, in plain Terms, that a moft dangerous Effufion of Blood will enfue, if either by an improper Regimen, Motion of his Arm, or any other Caufe, the Bandages fhould be unloofed or give way. For this Reafon, 'tis not only expedient, but abfolutely neceffary, that the wounded Arm, moderately bent, fhould be fupported in the Day-time with a Towel, or Scarf, hung about his Neck, and by feveral Pins fix'd to his Cloaths, that his Arm may the more effectually be kept from moving; and in the Night-time it is to be laid on a foft Pillow.

Some Hours after the Application of the Bandage, the Surgeon ought frequently to vifit the Patient, take a careful Survey of the Bandages, and the wounded Arm; and obferve whether a frefh Effufion of Blood, a hard and painful Tumour, a vehement Inflammation, or a Gangrene, have already happen'd, or are likely to happen; and whether the Bandages are ftill firm and tight. If all other Appearances are favourable, tho' a large, but at the fame time a foft, Tumour arifes about the Part affected, the Bandages are to remain in that State, and not to be loofed before the fourth Day; for a Tumour of that Kind portends no Ill, even tho' it fhould diffufe itfelf thro' the whole Arm; but when the Bandages appear too loofe, they muft be taken off with the greateft Caution, and again applied more tightly; whilft they are taking off, the Brachial Artery fhould always be comprefs'd with a Torcular, or at leaft with the Thumb of an Affiftant, about the Middle of the Arm; and the Wound itfelf fhould always be comprefs'd with the Thumb or Finger of the Surgeon, till the fame Bandages, or others, together with frefh Comprefles, are again applied: But we are to take particular Care, that the Comprefles, efpecially the undermoft, or the chew'd Paper, if adhering to the Orifice, be not pull'd away, but rather be allow'd to fall off of their own Accord: And, indeed, this Bandage is carefully to be furvey'd, and when it becomes loofe, to be made tighter, after putting a little Balfam of *Peru* or *Capivi* into the Wound, fo long as there is even the leaft apparent Danger of a frefh Effufion, and till the Wound is effectually agglutinated. But if, unluckily, a frefh Effufion come on, the Trunk of the Brachial Artery, about the Middle of the Arm, is to be ftrongly comprefs'd, either with a Torcular, or the Thumb or Fingers of an Affiftant, as we advifed above, till other and longer Bandages, together with frefh and thicker Comprefles, are prepar'd, as in the firft Dreffing; the former Applications are to be removed, the Wound is carefully to be cleanfed with warm Wine, or Spirit of Wine, and the Comprefles and Bandages are again to be applied in the manner above directed, till the Wound is agglutinated. But if a Gangrene appears, and is occafion'd by the Tightnefs of the Bandages, in that Cafe they are to be remov'd with the Cautions already given; and, after enlarging the Comprefles, they are again to be applied a little more gently, and the Arm itfelf is to be ply'd with fuch Medicines as are good againft Gangrenes: But if the Gangrene proceed from an Obftruction of the Circulation of the Blood, for want of another Artery in the Arm, which, by the way, is rarely wanting, in this Cafe there is an abfolute Neceffity for having recourfe to Amputation.

But even tho' none of thefe Misfortunes fhould happen, and tho' the Wound fhould, for fome time, remain in this hopeful Condition, the Patient is neverthelefs to be advifed to keep a Bandage on the Wound for eight, ten, or fourteen Days, and indeed the longer the better; and to keep his Arm in a State of Reft, left the Impetus of the Blood fhould again deftroy the tender Cicatrix, or raife it into an Aneurifm. The Regimen alfo, as in the Beginning of the Diforder, muft as yet be fpare and flender: Wine, and other ftrong Liquors, are entirely to be avoided, that a too violent Motion of the Blood may be prevented; which, if it fhould happen, is to be taken off by opening a Vein in fome other Part: For thus the moft dangerous Evils, that is, an exceffive Effufion of Blood, and an Aneurifm, are not only guarded againft, but the wounded Artery is more effectually agglutinated; efpecially if, when the under Compref, or the chew'd Paper ufed for that Purpofe, falls off, a little Balfam of *Peru* or *Capivi*, or any other balfamic Effence, be applied to the Wound. By thefe means the Patient is frequently reftor'd fo effectually, that he fuftains no manner of Injury by the Error of the Surgeon.

Thefe are the Meafures to be taken, and this the Courfe to be follow'd, by the Surgeon, when neither Patient nor By-ftanders fufpect the Error; but if any one fhould at firft fufpect the Misfortune, and fee the Surgeon's Error, in this Cafe 'tis better ingenuoufly to own his Blunder, which indeed may be committed by any one; and after laying down the Caufes of the Error, which could not have been guarded againft even by the moft fkilful and quick-fighted Surgeon, he is to encourage the Patient and By-ftanders by the Promise of a speedy and effectual Cure, provided his Directions are follow'd. This open Ingenuity, and frank Confefion, of the Surgeon frequently lays a Foundation for a fpeedier and furer Cure, than if the Patient had not fufpected the Error; becaufe, being by this means apprifed of the Danger, he is the more careful to follow his Surgeon's Directions, and both do and fuffer whatever is thought neceffary to his Cure.

But when the Orifices of the Skin and Artery do not exactly correpond to each other, but the Blood, flowing from the wounded Artery, infinuates itfelf between the Mufcles and the Skin, the Surgeon is then to proceed in a quite different Method: For, in this Cafe, 'tis by no means proper to bleed the Patient, *ad Animi Deliquium*; becaufe, in the mean time, fuch a Quantity of Blood may poffibly infinuate itfelf between the Mufcles and the Skin, as may lay a Foundation for a Sphacelus by its Corruption, or at leaft create an immediate Neceffity of performing the Operation for the Aneurifm. In this perplexing State of Things, therefore, if the Orifice of the Skin cannot, by the Affiftance of the Finger, be made to correpond fo to the Orifice of the wounded Veffel, that the Blood may not infinuate itfelf between the Mufcles and the Skin, but flow freely out of the Body, the Orifice is immediately to be ftopp'd with the Finger, or a Piece of chew'd Paper; and feveral Comprefles, becoming gradually broader, are to be applied to it; and the Comprefles are to be retain'd and fix'd by Bandages in the manner above-directed; nor is the Application of that long Compref, and Bandage, which we have recommended for compreffing the Trunk of the Brachial Artery, to be neglected. A large Quantity of Blood muft alfo be taken from fome other Part of the Patient's Body, if Circumftances call for it: After this the fame Steps muft be taken which we have directed above, till the Wound be effectually agglutinated. Soon after the Patient muft again be vifited; for it fometimes happens, that, after the Application of the Bandage, no Blood flows from the Wound, but fo infinuates itfelf between the Mufcles and Skin, as to diftend the Arm fometimes to a prodigious Size. *Dionis* gives us a memorable Cafe of this Nature, in which he was obliged to lay open the Skin of the whole Arm, and evacuate four Pints of Blood, which had fill'd all the intermediate Space of the Arm, between the Elbow and the Scapula. *Ruyfeh* alfo gives us an Inftance much of the fame Nature, where the Blood was found coagulated almoft thro' the whole Arm. *Heifter*.

#### CURE of ANEURYSMS.

ANEURYSM is a Term in Ufe among the Surgeons, by which they fignify a Tumour caufed by a Dilatation, Percuffion, or Rupture of an Artery, full of Blood, and commonly attended with a Pulfation. They reckon two Kinds of Aneurifms, the *Spurious* and the *True*: The true Aneurifm is, when a Tumour, with more or lefs Pulfation, arifes from a Dilatation either of the whole Artery, or only of one Side thereof, almoft in the fame manner as the Tumours call'd *Varices* are generated in the Veins. Both thefe Sorts of Tumours may be confider'd as Hernias of the Arteries and Veins; and by fome, for that Reafon, are fo call'd. On the other hand, a *Spurious* Aneurifm happens from an Aperture made in an Artery, either by external Violence, as in Phlebotomy, a Wound, or a Contufion; or by an Erofion, however caufed, whence there is produced an Extravaſation of Blood betwixt the Skin and the other Parts; from whofe Effufion, and Detention under the Skin, the Part affected fwells, by little and little, to an exceffive Degree, and becomes of a livid or black Colour; or when a true Aneurifm happens to fwell in fo extraordinary a manner, that its containing Coats being diftended and broken, Blood either iffues from a Wound, or there is an Effufion of the fame under the Skin, which remains whole and unperforated. Hence arifes a very troublefome Tumour, which has little or no Pulfation, and lefs Elevation than in the true Aneurifm. Sometimes a Gangrene follows the Corruption of this Effufion of Blood, or Death itfelf, from the profufe Hemorrhage. But we may alfo diftinguifh Aneurifms by the Accidents which accompany them: Thus fome are deftitute of the bad Symptoms which attend other Kinds; and there are fome, particularly fuch as are call'd *Spurious*, which are accompanied with Immobility, a great Pain, and a Corruption and Sphacelation of the Part: Thefe may, not improperly, be ftyl'd *complicated*; and the former Kind, *fimple*. They may alfo be diftinguifh'd into *external* and *internal*; the firft affects fome external, the other an internal Artery: And, to name no more, there feems to be a very remarkable Difference between Aneurifms, as fome of them, tho' of a good



a good Bigness, are now-and-then void of Pulsation; others are constantly attended with the same, in a greater or less Degree; for you must observe, as was said before, that the *spurious* Aneurysms, especially the larger Sort, have scarce any Pulsation; but in the true Kind, and principally those of a small Size, the Pulsation is pretty strong; and in some of these Aneurysms diminishes as the Tumour increases, but in others is not diminish'd, but rather increases with the Tumour.

The true external Aneurysm, besides the Properties just now mention'd, is commonly at first a very small Tumour, often no bigger than a Hasle-nut, with a constant Pulsation. As for internal Aneurysms, because they are invisible in the Beginning, we can say nothing of their Size. To proceed then with the other; the Place of the Tumour is, for the most part, soft to the Touch, and a fluctuating and renitent Liquid is perceiv'd in it. It very seldom deviates from the natural Colour of the Skin, and beats like other Arteries. The Tumour, when press'd with the Finger, while it is yet small, vanishes, and returns when the Finger is removed; but this Trial very seldom or never succeeds, after the Tumour is advanced to any considerable Size; for the Tumour increases by degrees, and sometimes arrives to a vast Bigness. The spurious Aneurysm swells, with a Pain, and Hardness, and a Lividness of the Skin; but the Tumour is more flat than in the other, and generally without a Pulse; when it is press'd, a Noise is perceiv'd; and oftentimes the whole Member, or at least a great Part of it, being more and more inflated, at last putrifies, and becomes sphacelated.

Aneurysms very often arise in the Arms, that is, whenever the Surgeon, in opening a Vein, especially the Basilica, pricks an Artery at the same time, or at least touches it with his Lancet. For, in such Cases, the other Coats of the Artery, or those which were newly agglutinated, being worn and press'd by the continual Pulsation of the Blood, are more and more debilitated and distended, till at last they give way for the Rise of a very terrible Tumour. Wherefore if, in the Space of some Days or Weeks after Venesection in the Arm, there arises a Tubercle with a Pulse in it, as described in the preceding Paragraph, you may conclude, that you see the Appearance of an Aneurysm. But, besides the Surgeon's Instrument, there are a Multitude of other Causes, both internal and external, that give Birth to Aneurysms, as well in other Parts as in the Arms: For it is no unusual thing for remarkable Tumours to arise in several Parts of the Body, from Wounds, Bruises, and Suppurations of the Arteries, by external Causes. And 'tis not impossible for the Breast and Abdomen to be inwardly affected with Aneurysms, from the Weakness of the outer or inner Coats of the Arteries, however occasion'd, whether by Exulceration, for Instance, or Erosion. This is abundantly confirm'd by undoubted Observations of *Fallopian*, *Servinus*, *Rufib*, *Lancisi*, and myself. The Causes, indeed, especially of internal Aneurysms, are often doubtful, or wholly uncertain; however, they must be either internal or external: And 'tis probable, that Aneurysms, many times, owe their Rise to a Fall, or to Blows, or former Fractures, to violent Motions in lifting or pushing great Weights, to Leaping, hard Riding, or any other violent Concussion, by which an Artery may happen to sustain too great a Percussion, and be debilitated, or be too much press'd, and by that means distended into a Tumour: Or they may be owing to an Inflammation, Suppuration, and Erosion, occasion'd by an Ulcer of an adjacent Part, or a Part of the same Artery, whereby its other Coats are render'd too weak to sustain the Force of the Blood that rushes into them, and so are obliged to stretch and give way, and by degrees to expand into a Tumour. So it has been often seen, that from a slight Hurt of the Artery, by a Knife, a Dart, or any other sharp Instrument, especially in Phlebotomy of the Arm, as before observ'd, Aneurysms have proceeded; and even when the Artery has been but just touch'd, and only its outer Coat slightly wounded, by the Point of the Lancet, the inner Coat remaining entire: For this slight Hurt is the Occasion, that the inner Coat, at the Place where the Injury is received, becomes unable to resist and sustain the Pulse of the Heart, and the pressing Influx of the Blood, but is forced to give way; by which means the weak and injur'd Part is by degrees dilated into a very sensible Tumour, call'd an Aneurysm. Now if we apply this mechanical Theory of an Aneurysm from external to internal Aneurysms, many things may happen to injure the Coats of the internal Arteries: Thus an Artery may be weaker, and have less renitent Force, in a certain Place than elsewhere, whether the Cause of the Defect operates on the external Superficies of the Artery, or within its Tunics. So also from a Fall, a Blow, a Bruise, an Inflammation, Suppuration, Ulcer, &c. some Part of an Artery may be so debilitated, or corroded, as to become unable to sustain the Impressions of the Heart and Blood, and so an Aneurysm may be produced; especially if some external Force, as violent Motion, a Fall, Concussion, or the like, happen to concur.

How to prevent an Aneurysm, from an Accident in Bleeding, is specify'd above. I am now to give the Signs by which you may know, whether, in opening a Vein, you happen to hurt

an Artery, tho' but slightly; but as there are no certain, or, as they call them, pathognomic Marks of a slight Hurt of that Kind, we must trust to probable Conjectures. Whenever, then, we plainly perceive a Pulsation against the Point of the Lancet held to the Arm, but no Blood springs out of the Artery, we may reasonably suspect, that the outer Coat of the Artery has been touch'd, and suffer'd Injury: To avoid therefore the Danger of a supervening Aneurysm, you are to enter on the Method of Cure directed above.

But if, through the Imprudence or Negligence of the Patient, or the Surgeon himself, the thing be disregarded, or the Bandage, there advis'd, left off too soon, an Aneurysm is very easily form'd, and shews itself. For it is to be observ'd, that whenever a Tubercle, with a Pulsation in it, arises within the Space of a Month after a Vein has been open'd, there is an Aneurysm, which owed its Rise to a slight Hurt of the Artery in the Arm. But a true Aneurysm, while it is yet fresh and small, brings little or no Inconvenience with it, besides an uneasy Pulsation, and a slight Tumour; but afterwards, when by little and little it is increased, and grown to the Bigness of an Egg, or a Man's Fist, or his Head, of which last there are Instances, (see *Tab. 32. Fig. 6.*) it is attended with a most intense Pain, an Immobility of the Part, a Weakness, and other ill Symptoms; the Consequences of which are, that, without immediate Assistance, the Coats of the Arteries, becoming every Day thinner, are at last burst, to the great Prejudice of the miserable Patient, and oftentimes not without instant Danger of Death; for either the outward Skin is burst at the same time, and a dreadful Hæmorrhage succeeds, or it remains entire; in which Case there comes on, by little and little, a Corruption of the retain'd Blood, and a Gangrene. Tho' almost all Aneurysms are attended with Danger, and, as *Bartholine* and *Harder* assures us, few ever saw a happy Event of an Aneurysm; yet the most troublesome and dangerous are usually such as affect either the internal and largest Arteries, or those which lie very much conceal'd, and out of Reach. Of this Kind are those Aneurysms which arise in the Aorta, in the Beginning of the Brachial, Subclavian, or the Carotid Arteries, &c. So also, for the most part, are those Aneurysms incurable which affect the Carotid Artery in the Neck, the Subclavian and Axillary near the Shoulder, and also the Crural Artery, especially near the Belly. For, during the Operation, there usually happens a dreadful, and often mortal, Hæmorrhage; or they terminate in a Gangrene and Sphacelus. Aneurysms in the external Arteries are of a less dangerous Nature, and are frequently cured; of this Sort, in particular, are such as affect the Arteries of the Cranium, those on the Outside of the Ribs, of the Foot, Hand, and lower Part of the Arm. But in an Aneurysm in the Arm, which is caused by the Prick of a Lancet, unless it be taken care of in the Beginning, in which State, by Compresses and Ligatures, it is often cured, the Operation is of doubtful Event: For, in this Case, as the Trunk of the Artery wants to be conglutinated and closed, it can hardly be avoided but the Elbow and Hand, either through a Deficiency in the larger Branch, or the Smallness of the lesser Ramifications, must begin to want sufficient Blood and Nutriment; in which Circumstance a Gangrene and Sphacelus, and oftentimes a Mortification of the Part, are nigh at hand, as I have learn'd from long Experience, confirm'd by the Observations of several Physicians; so that we are often obliged to cut off the corrupted Part, to save the Patient's Life, who yet, for all that we can do, many times perishes after the Amputation. Whenever an Aneurysm breaks spontaneously, and contrary to Expectation, there is generally so great an Effusion of Blood, that the exhausted Patient must die immediately, if not very speedily assisted by means of the Touriquet, and other things of that Nature, under a skillful Operator. Equal, almost, is the Danger, when a Tumour of this kind is treated like an Abscess, and suffers an Incision from an ignorant Surgeon. But there is one thing, which, above all others, merits Observation, which is, that the spurious Aneurysms are far more dangerous than the true ones: For these latter, especially if they are of no extraordinary Size, may be endur'd for many Years, and even to the End of Life, without much Trouble or Hazard, especially with the Use of a proper Ligature or Bandage; whereas, on the contrary, the spurious Sort immediately betray their Tendency either to an excessive Hæmorrhage, or to a Corruption and Sphacelus. Indeed, both Kinds of Aneurysms are to be dreaded, in proportion to their Largeness, and dangerous Situation; insomuch that the intrepid and most experienced *Vildanus* never attempted any Chirurgical Operation upon them; and *Ruyfch* expressly says of the Surgeons of *Amsterdam*, that not one of them, for above twenty Years, undertook an Operation of that kind. So, also, a spurious Aneurysm is generally more difficult to be treated with the Knife than the true Sort; because the extravasated Blood being diffused on all Sides, and concreted, creates a great deal of Trouble to the Surgeon in removing it. As for internal Aneurysms, since they frequently lie conceal'd, 'tis plain, that they are out of the Reach of the salutary Art of Surgery, because they



they are not so to be come at by the Hands; or if these internal ones should, in some measure, offer themselves to Sight, there is no opening, or making an Incision in them, without immediate Hazard of Life; for which Reasons those consummate Surgeons, *Fallopian*, *Paré*, and *Severinus*, never attempted their Cure. Upon this Consideration we also, for our Part, lest we should be thought to throw away Time and Advice upon a desperate Case, shall only treat, in the therapeutic Part, of external Aneurysms, where there is some Prospect of a Cure.

That every Person may be instructed in the best Method of curing so dangerous a Disorder, we shall make it our principal Endeavour, in the first place, briefly to explain by what Methods Aneurysms, that arise in the Flexures of the Cubit, or Elbow, which happen more frequently than elsewhere, are most properly to be treated; whence it will sufficiently appear, after what manner other Aneurysms, which are less frequent, ought to be managed. Now when a true Aneurysm arises in the Flexure of the Cubit, while it is in the Beginning, and but small, or at least of no considerable Bigness, there are two Ways of Cure, one by Compress and Bandage, the other by the Knife. The former of these is executed in two different manners, that is, by Bolsters and Fillets; or by some peculiar Instruments, adapted to the Purpose. The Method of Compression for a true Aneurysm, while it is little, and for a spurious one, where is no Effusion of Blood between the Parts, is always to be try'd in the first Place; for it would be Cruelty to set about a dangerous Incision, when a milder Method of Cure would answer the End. After we have made a Repression of all the Blood from the Tumor, the Aneurysm may be contracted, and kept down, by means of Compresses of chew'd Paper, or an astringent Plaister, and afterwards with larger Compresses, and proper Bandages, which, if kept on the Place for some Weeks or Months, may be of great Service. This Method, to pass over more modern Examples, was long ago practised by *Hildanus*, *Tulpius*, and *Rogeri*. But if a Ligature of this Kind will not answer the Purpose, as *M. Bourdelot*, Physician to the King of France, experienced in his own Case, the Surgeons have invented proper Machines, by means of which the smaller Sort of Aneurysms are not only repressed and kept down, but with the Help especially of a strengthening Plaister, are usually cured. Two of these, among many, are represented *Tab. 32. Fig. 8. and 9.* tho' their Application and Use are better demonstrated by Inspection, than described in a Multitude of Words. In the mean time we hope they will be clearly enough understood from the Explication of the above-mentioned Plate, which see.

If the Aneurysm be too large to submit to Repression, either by Ligature or Instruments, or if a true Aneurysm, by the bursting of the Coat of the Artery, be degenerated into a spurious one, especially if the Blood diffused amongst the Flesh tends towards a Gangrene; if there be any Immobility of the Arm, attended with Pain; in short, if there be any Danger, that from the Bursting of the Tumor and Skin together, the redundant Hæmorrhage should kill the Patient on a sudden; in all these Cases Recourse must be had to the Knife. The Operation, however, being very painful and dangerous, is not to be undertaken rashly, but with the utmost Caution and Circumspection, and after Consultations had with Physicians, and the most experienced Surgeons, for fear that if any ill Accidents should happen, that were unforeseen, they should readily be imputed to the Ignorance or Temerity of the Operator, who, as 'twill be pretended, was under no Necessity of proceeding in that Method.

The Business of the Operation consists in two principal Points, which are, first, removing the Tumor of the Aneurysm, and afterwards the Agglutination of the Artery. In Italy, no longer ago than the last Century, the Practice was to amputate an Arm affected with an Aneurysm, and to fear the divided Arteries with an hot Iron, as appears from *Bartholin's History of an Aneurysm*. At present we endeavour to preserve the Arm, and carry on the Cure by gentler Means. That the Surgeon may be the more ready and exact in performing his Office, he ought to direct his Intentions to the three following Points: First, by means of the Tourniquet, to stop the Blood, which is a Contrivance unknown to the Antients; in the next Place, to find out and discover the Artery; and, lastly, to compress and bind it fast by the Help of some Topical Medicine or Ligature. He ought, therefore, before he enters upon the Operation, to be provided with all the necessary Instruments, and have them ready by him, dispos'd in Order, in a Dish, or on a Board or Table. The common Apparatus of Instruments, or things necessary, is as follows: A Tourniquet, for compressing the Artery of the Arm, and stopping the Blood, and this either a common one, or one of better Sort (described under the Article AMPUTATIO); then an Incision-knife, for laying bare the Artery (*Tab. 22. G*); some small Hooks (*Tab. 29. Fig. 2, 3.*); a Sponge dipt in hot Wine, or Spirit of Wine; a Pair of Scissars, with a blunt Point (*Tab. 22. C or D*); Lint sufficient; some small square Bolsters of different Sizes; a narrow, but thick, Bolster, a Span long; two large linen Cloths,

big enough to envelop and cover the whole Arm; and, lastly, two or three Fillets, of the Breadth of two Fingers, but three or four times as long as those used about Bleeding in the Arm. Besides those we have mentioned, if any one chuses a Method of Cure which proceeds by Astringents and Corrosives, which, however, is a very uncertain way, he must have in Readiness a Bit of blue Vitriol, or some of *Weber's* Styptic Water, or Butter of Antimony, or some other thing of the like Nature. If you think it best to make a Ligature upon the Artery, which is the surest way to prevent a fresh Hemorrhage, and is, for that Reason, practised of late by the best Surgeons, because the Falling-off of the Eschar is often followed by a Flux of Blood, with great Danger of Death, provide yourself with a crooked Needle, threaded with a double or triple waxed Thread, or instead thereof, with a peculiar Instrument invented by myself for that Purpose (See *Tab. 29. Fig. 4.*).

Being furnished with all things requisite for the Purpose, the Patient is to be seated in a Chair, bending forwards, with his Arm extended as for Bleeding. Then four Assistants are to be disposed in Situations where they may be most useful and serviceable to the Operator. For Example: When the Right Arm is affected, I think it most convenient for the Surgeon himself to stand by the Right Side of the Patient, and to place one of the most dextrous of his Assistants at the Right Shoulder, who may lay hold of the Arm above the Tumour, together with the Tourniquet apply'd thereto, in order to strain it tighter, or relax it, according to the present Exigency, or the Surgeon's Word of Command. Another should be ordered to stand before the Patient, and strongly to hold the Arm above the Wrist, that it may not easily be drawn back while under the Operation. Let a third stand by the Left Side, holding the Dish, or Table, with the Instruments, and the rest of the Apparatus. And the fourth must stand ready, as Occasion serves, to furnish the Surgeon with whatever he shall think necessary for completing the Operation. In what Order and Position the Operator and Assistants ought to place themselves when the Disease affects the Left Arm, is very obvious from the Premises, being only a Disposition of the Persons in an Order directly contrary to the former.

The first Business of the Operation consists in a very exact Application of the Tourniquet upon the Brachial Artery, nearly between the Middle and the upper Part of the Arm (See *Tab. 24. Fig. 1. K*); which must be gently streighten'd, till no Pulse remains either in the Aneurysm itself, or at the Wrist of the Hand; for this is the best Precaution we can take against an Effusion of Blood. But we must take care, that the Constriction be not too hard, so as to injure the Nerves, and other tender Parts. Let the Assistant on the Right Side hold the Stick placed in the Tourniquet, or if the Surgeon chuses a Tourniquet furnished with a Screw, (see *Tab. 26. and 27.*) it will remain fixed on the Part, by that means, without further Trouble.

The Tourniquet being thus rightly fixed, there are three different ways of Operation, which, we think, deserve a particular Description.

The first Operation consists principally in passing the Incision-knife, when the Tourniquet is fixed, through the whole Aneurysm, if it be a true one, from the Bottom upwards, according to the Length and Situation of the Artery. A Wound being thus made of sufficient Largeness, either with the Knife, or by Scissars, either lengthwise or across, the Surgeon, by means of his Fingers, his Probe, and a Sponge, is to cleanse and deterge it from all the corrupted Blood and Matter. The Wound being cleansed, the Tourniquet must be a little relaxed, that the Discharge of Blood may discover the superior Orifice of the Artery. If the Patient be robust, and full of Blood, the Tourniquet is not presently to be streighten'd again, but some Ounces of Blood, as far as is consistent with Safety, may be suffer'd to flow from the Wound. The Tourniquet being streighten'd with all possible Care, if any Topics are thought proper, a little Bit of blue Vitriol, wrapt in Lint or Cotton, may be apply'd to the upper Orifice of the Artery; and over this may be laid some small Bolsters, in such Order, that the least of them lying innermost, the rest increase in Size gradually to the biggest, which is outermost, with good Store of Pledgets of Lint, roughly twisted, disposed on each Side. All these things must be well kept and held together with the Fingers, but especially the Thumb, of the Left Hand, and be closely compress'd upon the wounded Artery. Instead of a Bit of Vitriol, you may apply a twisted Pledget, express'd out of *Weber's* Styptic Water, or Butter of Antimony, to the superior Orifice of the Artery, with the same or better Effect, taking care to lay over it every one of the things before-mentioned. All these must be cover'd with a square Plaister, slit on each Side, and a large square Bolster of a considerable Thickness; and, lastly, the Whole must be encompass'd, and bound up, with a Fillet three or four times as large as those which are commonly used in Phlebotomy. Those who follow *Dionis*, perform the Bandage in such a manner, that, omitting the Vitriol, they first apply a Bit or two of chew'd Paper, or a small Bolster



Bolster moistened with some Styptic Water, over which they bind a Multitude of small Bolsters, one still larger than another, like those we have mention'd, upon the open Orifice of the Artery; and this Method may sometimes well enough answer the Purpose.

But for the better Security against an Hæmorrhage, over the first Fillet must be brought another like it, which, after some Windings, like the former, about the affected Part, is to pass over the long, thick, and narrow Bolster, upon the Inside of the Arm, in order to strain it close to the Brachial Artery, in the Line of its Direction, and keep it tight, by passing over it as it winds upwards; and that this Fillet may hold the faster, it should go once round the Breast, and have its End firmly fasten'd to the Shoulder or Arm, and then the Patient is to be left to his Repose. Having proceeded thus far, and the Tourniquet being a little relaxed, we are to examine whether any Blood has made its way through the Bandage; and if no Sign thereof appears, the Operation is well performed.

If any Blood appears, the Tourniquet is again to be freightened, and all the Bandage being loosened, either the Ligature is to be renewed in the same manner as before, and with all imaginable Care; or if there be no trusting to so uncertain a Method of Cure, the Extremity of the Artery, agreeably to the Advice of *Paulus Ægineta*, is to be skilfully ty'd, by passing under it a crooked blunt Needle, and a strong double Thread; for there is scarce any other Means left to save the Life of the Patient. But here are two things necessary to be observed, which are, that the Surgeon be very careful, in the first place, to avoid hurting the Artery; and, secondly, that he be no less wary, lest he should hurt or prick the Nerve that lies near it. For this Reason it will be most advisable to make a sufficient Incision in the upper Skin, and with a small Hook, as exactly as may be, to remove or loosen the Nerve from the Artery, if it be possible; after which, to avoid wounding either of those Parts, you are to pass the blunt End of the Needle, which they call the Head, under the Artery, till you can take hold of the Thread, that you may not hurt the Artery with the sharp End of the Needle; or you may make use of that peculiar Instrument of my own Invention (see *Tab. 29. Fig. 4.*); which, after you have passed the Thread far enough through it, and cut it, may be withdrawn; and the superior Orifice of the Artery must be ty'd up, after laying upon it some Lint, or a little thin linen Bolster, and the Thread should be left to hang the Length of about four Fingers Breadth out of the Wound, till, as the Artery heals, it loosens, and falls off. Some advise the tying also of the lower Part of the divided Artery, but other Surgeons hold it absurd, needless, and even pernicious; and indeed in some Circumstances, as when the Flexure of the Cubit is concern'd, they are much in the Right; for in this Case a much greater Wound and Cicatrix is to be made, either of which may easily endanger a Stiffness of the Cubit. But if the Aneurysm in the Arm be out of the Flexure of the Cubit, and particularly below the Cubit, and the lower Part of the Artery, after the superior is ty'd, continues to bleed, it may be ty'd without Injury, and even ought to be ty'd. For Instance, in the Cure of an Aneurysm of the cubital Artery in the Middle of the Arm, that is, betwixt the Hand and the Flexure of the Cubit, after I had ty'd the upper Extremity of the wounded Artery; and the lower, the Tourniquet being loosen'd, still continued to discharge Blood in a considerable Quantity; I ty'd it up, by passing under it a crooked Needle, with a strong Thread; and the Patient, who was near Death, perfectly recover'd his Health, without any ill Accident, by the Help of balsamic Medicines. Wherefore, if there happens a Necessity of tying the Artery near the Cubit, it must be ty'd; otherwise it must be well compress'd with Bolsters, and a convenient Ligature; for by this means, without tying, I have perfectly cured the Wound of the lower Part of the Artery, without the least Effusion of Blood. It is the Custom with some, after tying the Artery, to cut it across just under the Ligature, with a View of preventing Effusions of Blood, as the two Extremities of the divided Artery, retiring within the Flesh, are by this means closed up. But I look upon this Method as pernicious, or at best insignificant; and I myself have twice undertaken the Operation, without cutting the Artery, and yet my Patients did very well. As to the rest, the Wound must be well filled up with Lint and Rags, or with Bolsters closely compress'd together, and afterwards bound up in the most exact and skilful manner.

Some think it not amiss, in order to prevent an Inflammation, to wrap those Parts of the Arm which are near the Cubit on both Sides, in Linen dipt in Oxycras, and over that to make a spiral Bandage, and sometimes to take away Blood from the opposite Arm. This is a good Precaution with respect to Persons of a hot Temperament, and full of Blood: But for such as are already refrigerated, and debilitated, with too great a Profusion of Blood, the taking away of more, tho' recommended by the *French* Surgeons without any Exception, and the Application of Refrigerants, are destructive; for I have cured such, without taking away a Drop of Blood; and in cold

Habits of Body, instead of Oxycras, or Vinegar, have taken care to foment the Arm with hot Spirit of Wine camphorated, or impregnated with Theriaca, and so I have bound it up. When this is over, the Patient must be put to-bed, and his Arm, gently bent, should be laid on a Pillow, that it may rest on a soft Place, and by that means all vehement Sallies and Pulsations of the Blood may be prevented; for Rest in this Case is highly necessary. However, if the Arm happens to swell extremely, we must be very cautious, lest a dangerous Inflammation should be occasion'd by the Straightness of the Bandage; for if any such thing be apprehended, the Bandage is to be taken off, and renewed. But upon other Accounts we are not easily to be prevailed upon to loosen the Bandage, for fear of an Hæmorrhage; for I know, by Experience, that in these Cases the Arms can bear to swell to a very great Degree, and even till they turn livid, without any considerable Injury, provided the Tumor be not too hard and painful, and there be no Signs of a Gangrene.

But to secure the Patient from being exhausted by a sudden Effusion of Blood, which may easily happen, when Astringents and Corrosives have been used, or in case of a bad Ligature, a Person provided with a Tourniquet should be order'd to watch for some Days and Nights together, who, if an Hæmorrhage should happen, may be ready to stop the Blood by applying his Thumb, or soon restrain it by clapping on the Tourniquet; and then call a Surgeon to make a Ligature on the Artery, if there were none before, or a better and stronger one, where it had been ill made, that the Patient may not perish by the Loss of Blood; on which Account, it is, in my Opinion, safer to tie the Artery, than to leave it unty'd; a Ligature therefore should be made upon the Artery at first, with a strong Thread, as accurately as is possible. Wherefore those Surgeons are not in the Wrong, who pass a triple Thread under the Artery, and leave one of them loose, in order to be serviceable upon such an Emergency; and, that, if the other two are not sufficient, they may tie it up afresh with the third Thread.

Now the first Bandage, provided it be sufficiently firm, if there be no Effusion of Blood, great Inflammation or Tumor, or any other ill Accidents of that Kind, ought not to be loos'd till the third or fourth Day, that the Wound of the Artery may be the better conglutinated. But when it comes to be loos'd, the Surgeon ought to take all imaginable Care, in the first place, that the Artery be compress'd, either by the Assistant's Fingers, or by means of the Tourniquet; and next, that the Compresses which stick to the Place, and especially those next the Wound, be not imprudently taken off, and so occasion a new Effusion of Blood. The Wound, however, as far as is convenient, ought to be cleansed from Sordes, and to be dress'd with fresh Lint, and some digestive Ointment, till whatever adheres to it resolves of itself, and comes off in the rest of the Dressings. But it is by much the safest Way not to be too frequent in loosening the Dressings for the first fifteen Days, and then always to observe the same Precautions as I just now advised, lest some extraordinary Effusion of Blood, especially if the Artery be not ty'd, should occasion a fresh Trouble to the Operator.

But if within a few Days after the Operation there be an intense Heat, with a quick and vehement Motion of the Blood, that is, a Fever, which may endanger an Hæmorrhage and Gangrene, we are to have immediate recourse to Phlebotomy in the other Arm, which is sometimes necessary to be renew'd, especially in such as abound with Blood, and Medicines are to be prescrib'd for allaying the Heat. As to Diet, the safest way is to avoid all heating, hard, and solid Meats; and, on the contrary, to subsist on very thin Broths, and forbile Food, very much diluted and refrigerating, and such as is usually prescrib'd in dangerous Wounds and Inflammations.

As soon as the Orifice of the Artery is thus closed, which, in Aneurysms of the milder Sort, generally happens about the tenth or twelfth Day, but later in others which are of a worse Kind, we are to set about conglutinating the external Wound with dry Lint, or some vulnerary Balsam, not omitting every now and then gently to extend the Arm, and bend it back again; for without this Precaution there is Reason to fear lest the Arm, by the too great Stricture from the Cicatrix, or the too long intermitted Motion of the Joint, should become crooked and inflexible.

Another Method of curing Aneurysms is after the following manner:

The first Step which is made, is to place and adjust the Tourniquet, and put the Arm in the Situation above describ'd. Then an Incision is made in the outer Skin, without touching the Aneurysm; then the Artery, above and below the Tumor, is carefully separated from the adjoining Nerves, and by Help of a small Hook is so raised, that a crooked and blunt Needle, or my Instrument before-mentioned, with a double waxed Thread, may pass through under it. In straining this Thread there is always a little Bolster, or Bit of Linen, under the Knot, to save the Artery from being cut. The Artery being thus ty'd on both Sides, the Tumor situated between is open'd



open'd with the Incision-knife, and the Wound treated in the manner before-mention'd. This was the Method by which *Purmannus*, as he relates it himself, extirpated a most dreadful Aneurysm, (see *Tab. 32. Fig. 6.*) and healed the Wound in the Space of a Month.

The third Method of curing a true Aneurysm, is as follows :

First, the Tourniquet is fixed on ; next, after pressing, if possible, the Blood out of the Tumor down towards the Hand, an Incision is made with the Knife in the outer Skin lengthwise, without touching the Aneurysm ; then the Artery next above the Tumor being separated from the adjacent Parts, and especially the Nerve, is ty'd with a double or triple Thread, once or twice, as Occasion shall require, till the Influx of the Blood into the Tumour, after taking off the Tourniquet, be wholly stopped. This done, the Wound must be very skilfully bound up, and treated with all due Care, till the Thread loosens of itself, and falls off, and the Place is perfectly conglutinated. This Method of curing without inflicting any considerable Wound, or causing a remarkable Cicatrix, was introduced by *Anelius*, as he says himself, by which he once cured a very dangerous Aneurysm at *Rome*, within the Space of a Month. For as to the general Practice, which has hitherto obtained, of laying open an Aneurysm, and with the Help of the Fingers or Instruments, exhausting all the Blood there collected, seems more inconvenient, both as it requires more Time, and occasions greater Pain, and a larger Cicatrix. The Operation being finished, *Anelius* bled the Patient four times in the opposite Arm, which the *French* Surgeons in general also prescribe. This frequent Bleeding, as it is oftentimes of singular Service in tempering the Heat and Motion of the Blood in those warmer Regions, so in our Countries, because of a colder Air, and a different Habit of Body, I judge it less necessary, and generally improper, especially when the Patient is already weaken'd ; and also because some Aneurysms are very well cured without it.

If a Tumor of an Artery, as I have sometimes observ'd it, should break of itself, and degenerate into a spurious Aneurysm, there is scarcely any sure way to save the Patient, but by the Operation. In this Case therefore, as I have elsewhere advis'd, the Tourniquet is first of all to be apply'd, for the Prevention of an Hæmorrhage ; after which an Incision is to be made in the Skin, deep enough to exhaust all the Blood and Matter ; and the Wound, having been very carefully deterged, is to be cautiously conglutinated by Astringents or Corrosives, or, which is much the better way, by tying the Artery with a Thread, as in a true Aneurysm.

If the Brachial, or Cubital, or suppose the Tibial, Artery, should be wounded or cut by a Sword, or any other Weapon, so that no Medicines or Bandage can put a Stop to the Effusion of Blood, there is no readier or better Remedy, in my Opinion, than what has been propos'd for an Aneurysm, which is, to apply the Tourniquet, and then search for the wounded Arteries, the smaller of which may be stopped with Astringents, and the larger ty'd with Threads, in the manner already described ; for by such Means I myself have often saved Men, who, in all Appearance, were near expiring, after they had been almost totally exhausted of their Blood and Strength, and had been under the Hands of other Surgeons for ten and twelve Days, and been treated in vain with Styptic Remedies, and extremely hard Ligatures, by which their Arms were swell'd to an enormous Size. Whether such Methods will, at any time, succeed upon the Crural Artery, I have never read, nor as yet had an Opportunity of trying.

Aneurysms in other Parts are to be treated nearly in the same Manner, provided they are curable, which must be determin'd from a thorough Inspection and Consideration of their Place, Situation, and Magnitude. However, it will not be amiss to touch upon some Particulars, for the sake of young Practitioners, and because our modern Surgeons have offer'd little or nothing about them. The first I shall mention is an Aneurysm, which arose between the Thumb and Fore-finger, from the Prick of a Penknife, and which *Tulpius* cured by Compression. To this he apply'd an astringent Plaister, and sustain'd it upon the Part, by a thin Plate of Lead, and Bandage ; and within the Space of four Months, the Blood being expelled out of the Tumor, and the Lips of the Wound drawn together, the Aneurysm totally vanished. The like Compressure may be try'd upon any Aneurysm whatsoever, especially whilst recent, and of no extraordinary Size, first repressing the Blood into the Artery, whenever it can be done. Our second Instance is of an Aneurysm in the Head : A Woman struck her Son, seven Years old, a smart Blow with a Stick on the Left Side of the Head, where the Carotid Artery passes ; immediately there arose a beating Tumour, as big as a Hasle-nut, blackish at first, and yielding to the Touch, which, in the Space of eight Days, grew to such Dimensions, as to take up one half of the Head, extending itself from the Sagittal Suture, along the Temples and Forehead, as far as the Eyes. Upon a Consultation of Surgeons it was agreed, that a dubious Remedy was better than none in a desperate Case ; in Consequence

of which they open'd the Tumor with the Incision-knife, and taking away part of the Blood which was discharg'd abundantly, clos'd up the Wound with Astringents, and a tight Ligature, and healed the Patient in a short time. After the same manner was an Aneurysm of the Artery behind the Ear, not without a great deal of Trouble, conglutinated at last by Astringents and a Ligature. If an Aneurysm should arise about the Ankle-bone, such as *Ruyseh* describes, and which the Surgeon had imprudently open'd as an Abscess, it must either be laid open with the Knife, and the Wound, like the preceding, consolidated with Astringents, and a proper Ligature ; or the Artery must be search'd out, and ty'd up with a Thread. In the same manner are we to proceed with Aneurysms in other Parts of the Body, where there is any Prospect of a Cure. On the other hand, *Harder* gives an Instance of Death consequent upon opening an Aneurysm in the Neck ; and *Van Horne* has another which was follow'd by the like Event, from opening an Aneurysm in the Leg.

Those who are willing to form to themselves a clearer Idea of the Ligature of Arteries in Aneurysms, may consult *Tab. 32. Fig. 7.* where the Letter *A* represents the Part of the Artery situated above the Tumor, *B* the Part beneath, *C* the Aneurysm, *D* the superior Ligature, *E* the inferior. But here, to be observ'd once more, that the lower Part of the Artery in the Flexure of the Cubit ought very rarely to be ty'd, except Necessity requires it, for the Reasons already given. To draw to a Conclusion : How the Circulation of the Blood in the Arm is perform'd after an Operation of this kind, especially where there is but one Trunk of an Artery, as it often happens, about the Joint ; and how it comes to pass, that, as in the Example alleg'd by *Auesius*, the resluent Blood in the lower Artery, which has no Ligature upon it, is not elevated into a Tumor ; I have not hitherto been able clearly to determine. To be satisfy'd in these two Points, we ought to make a more narrow Search into, and inspect the dead Bodies of those who had undergone this Operation when alive. *Harris*, an *Englishman*, in his eighth Chirurgical Dissertation, absolutely condemns this Operation, and does not stick to call it a rash and horrid Butchery ; but for what Reasons, is best known to himself. In my Opinion, that Surgeon, who, out of Fear, rejects the most difficult and noble Operations of his Art, betrays too much Pusillanimity, which is too often a fatal Obstacle to the Recovery of the Patient. *Heister*.

The following Cases, from the *Edinburgh Medical Essays*, will illustrate the Treatment due to an Aneurysm.

#### CASE I. By Mr. MACGILL.

*James Forrest*, a Coachman, forty Years of Age, a hail, strong Man, being thrown from the Coach-box, broke the Bones of his Right Leg into a great many small Pieces ; and a Gangrene coming soon on, there was a Necessity to perform the Amputation in the Country where he then was. The third Day after this Operation he was let Blood by a young Surgeon there, who opened the Basilic Vein of the Right Arm. The Patient felt a very sharp pricking Pain, while the small Incision was made with the Lancet ; and four Days after he observ'd a Tumor, about the Bigness of a small Cherry, at the Wound, which he believed to be the common one of coagulated Blood, called by Surgeons Thrombus, and therefore did not mention it to the Gentleman who performed the Amputation.

On the twelfth Day after his unfortunate Fall, he was carried to Town, and received into the Infirmary, where the Cure of his Stump went on as well as could be wish'd, without any Accident or Symptom to retard the Cure. After he had been eight Days in the Hospital, he told the Physician and Surgeon then attending, that he had some Uneasiness from a Swelling at the Bending of his Elbow. When it was examined, a Tumor appeared of an oval Form, as big as a small Hen-egg, situated behind the Basilic Vein. The Skin over this Tumor was of a natural Colour ; no Pulsation could be felt, and it adhered as firmly to the Tendon of the Biceps Muscle, as Ganglions commonly do to Tendons. Two Days after, a Pulsation exactly synchronous to that of the Arteries, was distinctly seen and felt. When the Tumor was strongly press'd, it seem'd to be less, but could never be made to disappear. There was scarce any Pain at this Part, either in moving his Fore-arm, or when the Tumor was handled.

A Consultation of several Physicians, and of all the Surgeons who attended the Infirmary, being called, the Disease was unanimously determin'd to be a true Aneurysm ; but the Patient being still weak, it was resolv'd to try the Effects of artful Compression, and to delay the Operation till the Patient had Strength enough to undergo it, unless the Tumor seem'd before that to be in Hazard of Bursting. Graduate Compresses, wet in Oxycrate, were therefore applied, with the proper Bandage, which at first had an exceeding good Effect in diminishing the Tumor, but it soon after began again to increase ; and then several Machines, such as that with a Screw for the Fistula Lachrymalis, Mr. *Petit's* Tourniquet, &c. were used, but without any Success ; on the contrary, the Tumor still increased,



increased, and the Skin began to inflame; and a small Suppuration was brought on the most prominent Part of it. By laying aside these more forcible Machines, and returning to the Use of the former Compresses and Bandage, after covering the small superficial Ulcer with white Ointment, the Inflammation went off, and the Ulcer was cured. The Tumor was now all firm and hard, scarce yielding at all to Pressure, except at that prominent Point where it was soft, and where only the Pulsation could be felt, when the Fore-arm was bended; when the Member was extended, no Pulsation could be observed any where in the Tumor.

The Patient was not yet sufficiently recruited, and therefore the Operation of the Aneurysm was still delayed; but to prevent any Danger from the sudden bursting of the Aneurysm, the Tourniquet was kept constantly applied to the Patient's Arm.

In the Beginning of *January 1733*, the Patient was judged to be strong enough to suffer the Operation, and the Tumor increased so fast, that there was great Danger of the Teguments yielding suddenly, and therefore the Operation was not to be delayed any longer. This happening to be the Month of my Attendance, I was of course to perform; but previously brought all the Surgeons of the Hospital together, to examine the State of the Tumor, and to determine the Method to be followed in operating.

The Tumor was of a very great Bulk and Height, its Base extending internally as far as the internal Condyle of the Humeral Bone, and externally it had pushed the Tendon of the Biceps Flexor Cubiti, as far as the Cephalic Vein; it ascended about three Inches along the internal Side of the Biceps, and descended as far below the Joint of the Elbow, being also considerably prominent forward.

Being uncertain whether this Tumor was formed without the Artery, or if it was the Body of the Artery dilated, we determined to do the Operation in the most cautious, tho' more tedious way, *viz.* by Dissection, having also all the Instruments and Dressing for an Amputation ready, in case there was no Hope of Success from the Operation of the Aneurysm.

Having applied the Tourniquet in the common way to prevent any Hemorrhage, the Skin was pinched up about the Middle of the Tumor, and cut with a Bistoury; then a small Directory being pushed into the fat cellular Membrane, first upwards, then downwards, and to each Side, I cut upon it with a Bistoury, and thus made a crucial Incision on the whole Extent of the Tumor. After which I dissected the four Angles of the Teguments from the Tumor, with a convex edged Scalpel, flitching a cutaneous Artery, that would otherwise have been uneasy to me. The Tumor, thus laid bare, appeared covered, at its upper Part, with a thin cellular Membrane, but below it seemed to have a very strong tendinous-like Coat, which we soon discovered to be no other than the Aponeurosis of the Biceps Muscle; after separating the Adhesion this had to the Tumor below it with my Fingers, I cut it through to the lowest Part of the Aneurysm, which now was all bare, and full in View. The Coat of it was only a very thin tender Membrane, which appeared eroded, as well as the firm Substance it contained, at that prominent soft Part, where, as I mentioned before, the Pulsation only was to be felt. In endeavouring to separate the Tumor from the adjacent Parts with my Finger, its tender Membrane was easily torn in several Places; and therefore, without inflicting on such a Separation, I opened the Membrane from one End to the other, when several Ounces of a blackish grey-coloured Liquor, like to Coffee made of half-burnt Beans, ran out, and several Pieces of coagulated grumous Blood, and of polypous Concretions, fell down to the Floor. What remained was one large polypus-like Substance, that weighed six Ounces, below which some Spoonfuls of that blackish Liquor, mixed with pretty pure Blood, were taken out with a Sponge. There were no Bridles or fleshy Beams stretched transversely from one Side of the Cavity to the other, but the Humeral Artery, involved in all its Coats, came fully in View. About the Middle of the bare Part of the Artery we saw a Hole, large enough to receive the largest Surgeon's Probe, without any retorted Lips, or other Sign of the interior Membranes having been extended through the exterior, but exactly of the same Appearance, as if it had been made by an oval sharp-pointed Instrument. After by unloosing the Tourniquet a little, we made sure of what we saw, being the wounded Artery, one of the Gentlemen who assisted me, put in a strong Probe by the Orifice, and with it raised the Artery so, that I easily passed the Aneurysm Needle, with proper Thread, behind the Artery, both above and below the Orifice, without engaging the Nerve or Vein within the Thread. I made the two Ligatures in the common way, the Patient complaining much of Pain, while I tied the superior Threads; and then untwisting the Tourniquet, only some few Drops of Blood oozed out at the Aperture in the Artery, and the other common Dressings and Bandages were applied.

The polypous Lump we took out, was very hard and firm on the Side next to the Skin, except where, I said already, it was

eroded in the Middle; but turned softer, in a lamellated way, as it approached the Artery, till it degenerated gradually into mere coagulated Blood.

During half an Hour, after the Dressings were applied, the Right Hand remained cold, and scarce sensible; but gradually then recovered Sense and Heat. Next Day, that Hand was a little swelled; and on the second Day became so big, as to oblige me to take off the thick Compress, that was pressed on the Humeral Vessels by the exterior Bandage; after which, and fomenting the Hand with warm Water and Brandy, the Swelling decreased.

On the fifth Day after the Operation, the Dressings were removed, and the Wound began to suppurate in a very right way, and was cured entirely before the End of *March*, without any Accident, unless that on the 22d of *January*, Blood made its way through all the Dressings. It had come out from the Hole of the Artery, but stopped as soon as the Dressings were removed; and no Hemorrhage ever happened afterwards. In the Time of the Cure, the Hand often became cedematous, and sometimes a gentle Erysipelas attacked the Skin of it, but soon yielded to an Embrocation with the Aqu. Minderi, or to Aqu. Calcis, with some Brandy. The Threads with which the Artery had been tied, did not come out till the Middle of *March*.

We never could feel any Pulse below the Elbow since the Operation. The Member is weak, but he can perform the Motions of the Fore-arm, Hand, and Fingers. He still complains of a Numbness, and Difficulty of Motion, in the Thumb and Fore-finger, more than in any of the rest, tho' it is now two Months since the Wound was skinned over. *Edinburgh, Med. Eff. Vol. 2.*

#### CASE II. By Mr. Monroe.

*Andrew Rady*, living in *Galloway*, had the Misfortune, in being bled in the Basilic Vein of the Right Arm, by some Gardener there, to have his Artery hurt, which was followed by an Aneurysm. Somewhat more than a Year after, he came to Town here, and was received into the Infirmary in *May 1735*. On the 22d Day of that Month, Mr. *George Cunningham*, the Surgeon then in Attendance, performed the Operation. After the Tourniquet was applied, Mr. *Cunningham* laid open the Tumor from one End to the other, with one longitudinal Incision; then taking out the polypous Substance, and a small Quantity of liquid Blood, the small Aperture of the Artery was so plainly seen, that I put a Probe into it, and raised the Trunk of the Artery, while he passed the Needle behind it, the Sides of the Wound being held asunder, in the mean time, by two blunt Hooks. The proper Membrane of the Tumor was considerably thicker and stronger, than in *James Forrest's* Aneurysm, and required Force to push the blunt Aneurysm-needle through it; but the Nerve was pressed by the Tumor a good way from the Trunk of the Artery, so that there was no Danger of taking the Nerve within the Ligature. After making the superior Ligature, the Tourniquet was untwisted, but no Blood came by the Orifice, which shewed the Anastomosing Canals to be very small. The second Ligature was however made below the Orifice for Security. The Cavity was filled with soft Lint, and the other ordinary Dressings applied. That Afternoon his Hand swelled, and became warm, which removed all our Fears of the Circulation being entirely stopped. No Pulse was to be felt on either Side of the Wrist for several Days; but before the 5th of *June*, when both the Ligatures suppurated off, the Pulse was plainly to be felt on both Sides of the Wrist, and he was soon cured, having as much Strength and Motion in that whole Member as ever.

To make this Operation more speedy and safe, I would propose, that as soon as the longitudinal Incision is made, and the Polypus with the Blood is removed, the Patient's Elbow being bended some way, the Operator should take hold of the Humeral Artery with the Thumb and Fore-finger of the Left Hand, and, gripping it towards the Back-part, should push the Needle close upon his own Nails, by which he has a sure Direction whereby he may shun the Nerve, which he can readily distinguish from the Artery by feeling, and can, in that Posture of the Arm, easily draw the Artery so far outwards as to keep free of the Nerve.

The Operation then of the Aneurysm, which appeared by the Description Surgeons gave of it, to be very nice, difficult, tedious, and precarious, may be done easily, quickly, and safely, by opening the whole Tumor at once, and then putting the Ligature about the Artery, as just now described. *Edinburgh, Med. Eff. Vol. 4.*

As it may be agreeable to the Reader to know the precise Method generally pursued in our Hospitals, I shall add Mr. *Sharp's* Account of it, as follows:

Having applied the Tourniquet near the Shoulder, and laid the Arm in a convenient Situation, make an Incision on the Inside of the Biceps Muscle, above and below the Elbow a considerable Length, which being in the Course of the Artery, will discover



discover it as soon as you have removed the coagulated Blood, which must be all pulled away with the Fingers, the Wound being dilated sufficiently for that Purpose: If the Orifice does not readily appear, let the Tourniquet be loosened, and the Effusion of Blood will direct you to it; then carefully carrying a crooked Needle with a Ligature under it, tie the Vessel just above the Orifice, and passing the Needle again, make a second Ligature below it, to prevent the Return of the Blood, and leave the intermediate Piece of the Vessel to slough away, without dividing it. To avoid wounding, or tying the Nerve in making the Ligature, the Artery may be cleared away from it first, and held up with a Hook; but, I think, if we are aware of the Situation of the Nerve, there is no great Danger of hurting it. After the Operation, the Arm must be laid easy, on a Pillow in Bed, and the Wound be treated in the common Method, keeping it in that Posture a Fortnight, or three Weeks, especially if it should swell much, and not digest kindly.

In doing this Operation, it will be proper to have the amputating Instruments ready, lest it should be impracticable to tie the Artery; and even after having tied it, the Arm must be carefully watched, that in case of a Mortification it may be taken off, which though from Experience we learn is very seldom the Consequence, should, to all Appearance, be the perpetual one: For these Aneurysms following always upon bleeding the Basilic Vein, must necessarily be Aneurysms of the Humeral Artery, an Inch, at least, above its Division, which being obstructed by the Ligature, one would think, must necessarily bring on a Mortification; but we see the contrary, tho' for some time after the Operation, we can hardly distinguish the least Degree of Pulse, and ever after they continue languid. If the Humeral Artery happens to divide above the Elbow, which is not uncommon, the Prospect of Cure is better, and the Pulse will be stronger after the Operation. *Sharp's Surgery.*

It is to be observed, that *Heister* esteems the inferior Ligature of the Artery generally superfluous, and often pernicious, as is specify'd above.

ANFAKA, a Coagulum. *Rul. Johnsf.*

ANFIR-FILIUS, Mercury. *Johnsf.*

ANFIRARTO-SPIRITUS, Salt. *Idem.*

ANGEIOLOGIA, Ἀγγειολογία. See ANGIOLOGIA.

ANGEION, Ἀγγεῖον, a Vessel. See VAS.

ANGEIOTOMIA, Ἀγγειοτομία, from ἀγγεῖον, a Vessel, and τέμνω, to cut. A Dissection of the Vessels, as in Phlebotomy and Arteriotomy. It also imports a particular Dissection of the Vessels for Anatomical Purposes. See ANGIOLOGIA.

ANGELICA, a Plant thus called, of which *Dale* enumerates four Species. The first is,

ANGELICA, Offic. Chab. 400. P. Parad. 529. *Angelica sativa*, C. B. Pin. 155. J. B. 3. 140. Ger. 846. Emac. 999. Park. Theat. 939. Raii Hist. 1. 434. Synop. 3. 208. Boerh. Ind. A. 53. Rupp. Flor. Jen. 222. Phyt. Brit. 8. Mer. Pin. 8. Mor. Umb. 9. Hist. Oxon. 3. 280. *Imperatoria sativa*, Tourn. Inst. 317. Elem. Bot. 267. ANGELICA.

This is one of the greatest of the umbelliferous Plants; its Root is large, thick, and branched, running deep in the Earth, from which arises one large hollow round Stalk, a Yard and half, or two Yards high, spreading out into many Branches. The Leaves are large and winged, divided usually into three Partitions, or lesser Wings, each single Leaf being serrated, or indented about the Edges. On the Tops of the Branches grow large round Umbels, of small five-leaved white Flowers; the Umbels, as the Seed ripens, grow out into large globular Heads, bearing the Seed at the Ends, which is large and thick, striated, or furrowed pretty deep, of a whitish Colour, two Seeds being joined together, as in other umbelliferous Plants. Both Root, Stalks, and Seeds, are of a grateful aromatic Savour. It grows in Gardens, and flowers and seeds in June and July, the Root perishing after the ripening of the Seed, which is the second Year of its springing from the Seed.

*Angelica* is a Plant of many Virtues, being Stomachic, Cordial, Alexipharmic; of great Use in malignant pestilential Fevers, in all contagious Distempers, and the Plague itself: It causes Sweat, and drives out all noxious Humours through the Pores of the Skin. It is very useful in Disorders of the Womb, and Hysterical Affections; it provokes Urine, and the Catamenia, and expels the Secundines. The Root, Stalks, Leaves, and Seed are used.

Official Preparations of *Angelica* are a simple and compound Water, and the Stalks candied. *Miller Bot. Off.*

A Spirit of it cheers the Heart, and revives the Spirits to a Miracle. The Chymical Oil operates powerfully in all Intentions. Besides which, it cures Palsies, Apoplexies, Convulsions, Cramps, and Rheumatisms. *Pomet.*

It is said to be good for the Bite of a mad Dog, and for the Scurvy.

*Paracelsus* boasts, that at Milan, in the Year 1510. he did

little less than Miracles with this Plant in the Plague. And its Virtues in this terrible Disorder are confirm'd by a Multitude of Authors. It is also esteem'd an excellent Pectoral, and hence has been called *Herba Pectoraria*. The inspissated Juice of *Angelica* is said to prevent Putrefaction of the Gums, and Rottensness of the Teeth; and the Chymists agree, that the Quintessence of *Angelica* is the greatest Restorative and Cardiac in Nature. *Angelica* is farther recommended for the Leprosy.

The Stalk of *Angelica* sends forth a very agreeable Smell, the Seeds of it a different one; its Roots are more aromatic than any of these Parts, and its Parenchyma is filled with resinous Vesicles. It is very subject to be destroyed by Worms, which prey upon the Parenchyma, and leave the resinous Parts uncovered. This same Observation holds good in Masterwort, Ginger, Fennel, and in the Roots almost of all umbelliferous Plants. *Memoires de l'Acad. 1721.*

#### Aromatic volatile Salt of Angelica.

Take of the fresh small Roots of *Angelica*, dug up in February, two Ounces; cut them to pieces, put them into a Retort, pour upon them twelve times as much Spirit of Wine once rectified, and then add one Ounce of pounded Sal Ammoniac, and three Drams of Salt of Tartar. This being done, immediately lute on a Receiver, and distil with a gentle Heat, not exceeding 150 Degrees. By this means, there will come over into the Receiver a white alkaline, alcoholified Salt. When this ceases to rise, increase your Fire a little, and the Spirit of Wine will come off, and appear in very oily Streaks. Proceed as long as you have any of these Spirits, and when the Salt begins to be dissolved by the watry Part that ascends last, desist from the Operation, and put the Liquor thus prepared into a Vessel, which must be stopped very close. What remains after the Distillation, throw away.

Take an Ounce more of the same Roots, cut very small, put them into a Retort, pour upon them the Liquor drawn off before, and distil till the Salt, which will come off first, begins to be dissolved. Shake the Salt and Spirit till they are thoroughly mixed together, and stop them in a Vessel as close as possible.

#### REMARKS.

The Alkali of the Tartar, absorbing the Acid of the Sal Ammoniac, sets its pure Alkali free, and so renders it volatile, which, being united with the pure distilled Spirits of Wine, makes with these the volatile Salt of the preceding Process; and with this again, from the natural Disposition of the Alcohol, the Spiritus Rector of the *Angelica* unites itself, which resides in its balsamic oily Parts, and is very volatile. Hence the Nature of the Alcohol, which equally unites with all these Kinds of Spirits, is here determined by the particular Spirit of *Angelica*. In the mean time, the volatile and fixed alkaline Salts, and the acid Spirit of the Sea Salt, help to open the Body of the *Angelica* during the Distillation, and thus dispose it to give out its Oils and Spirits more successfully. The Liquor thus produced, on account of its Fragrance, grateful Taste, Penetrability, Mobility, and saponaceous, anti-acid, and anti-austere Virtue, furnishes us with a Medicine, which, in the Hand of a skillful Physician, may be used with great Success; for it is of Service in all watry, pituitous, cold, acid, and austere Diseases, in Cases where the Bile does not perform its Office, and in almost every Disorder, where there is a Languor without any Inflammation and Putrefaction; particularly, when, at the same time, an irregular Mobility of the Nerves and Spirits causes troublesome hypochondriacal and hysterical Paroxysms; and in Flatuluses, that arise hence, it proves an excellent Remedy. It is a noble Cardiac, Stomachic, Calefacient, Sudorific, Diuretic, Diaphoretic, Antiparalytic, Antispasmodic, and Antiepileptic Medicine, where the Disorders are owing to the Causes above-mentioned. The Credit of this is particularly due to *Basil Valentine*, and *Franciscus Sylvius*, who first introduced this noble kind of Medicine into Physic. The Followers of *Sylvius*, however, by an unreasonable Use of it, have frequently brought it into Disgrace. *Baerhaave's Chymistry.*

The second Species is the

ANGELICA SYLVESTRIS, Offic. Buxb. 20. Mor. Umb. 9. Park. Theat. 940. Ger. 846. Emac. 999. Raii Hist. 1. 434. Synop. 3. 208. Merc. Bot. 1. 19. Phyt. Brit. 8. Mer. Pin. 8. *Angelica sylvestris major*, C. B. Pin. 155. Boerh. Ind. A. 51. Hist. Oxon. 3. 280. Rupp. Flor. Jen. 222. *Angelica sylvestris magna & vulgarior*, J. B. 3. 144. *Angelica sylvestris vulgarior*,  
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*vulgatior*, Clab. 400. *Angelica aquatica*, Dill. Cat. Giff. 156. *Angelica palustris*, Rivin. Irr. Pent. *Imperatoria pratensis major*, Tourn. Inst. 317. Elem. Bot. 267. WATER-ANGELICA.

It delights in watry Places, and flowers in July. The Herb is used in Medicine, and is supposed to be endued with the same Virtues as the garden Angelica, but weaker. Dale.

The third Species is the

HERBA GERARDI, Offic. Ger. 848. Emac. 1001. Merc. Bot. 1. 42. Phyt. Brit. 58. Mer. Pin. 61. *Podagraria Rivin. Irr. Pent. Dill. Cat. Giff. 90. Podagraria Rivini & Lobellii*, Rupp. Flor. Jen. 225. *Podagraria vulgaris*, Park. Theat. 943. *Angelica Podagraria dicta*, Mor. Umb. 9. *Angelica sylvestris minor seu erratica*, C. B. Pin. 155. Raii Hist. 1. 435. Synop. 3. 208. Boerh. Ind. A. 53. Tourn. Inst. 313. Elem. Bot. 262. *Angelica sylvestris repens*, J. B. 3. 145. Clab. 400. Hist. Oxon. 3. 281. GOUT-WEED.

This grows principally in the Hedges of Gardens. It flowers in June and July. The Herb and Root are recommended for the Gout. Dale.

The fourth is the

ARCHANGELICA, Offic. J. B. 3. 143. Raii Hist. 1. 454. Clab. 400. *Angelica Scandiacæ, seu Archangelica Tabernæmontani, quæ umbellâ est fluvâ, semine rotundiore*. C. B. Pin. 155. Boerh. Ind. A. 53. *Archangelica seu Angelica Tabernæmontani, seu Scandiacæ*, Herm. Prælect. *Angelica prima*, Boerh. Hist. P. 84. *Imperatoria Archangelica dicta*, Tourn. Inst. 317. Elem. Bot. 267. GREAT WILD ANGELICA.

It agrees in Virtues with the former.

ANGELICUS PULVIS, Angelic Powder. Another Name for the MERCURIUS VITÆ. Castellus. See MERCURIUS VITÆ.

ANGELINA ZANONI ACOSTÆ. *Castanea Malabarica Angelina dicta Anjeli*, H. M. An *Angelina Arbor*, C. B. ?

This is a Tree of vast Bigness, sometimes above sixteen Foot thick, which grows on rocky and sandy Places in the Country of Malabar, in the East-Indies, and bears ripe Fruit in December, and continues bearing for a whole Century.

The dry'd Leaves, heated, alleviate the Pain and Stiffness of the Joints, and discurt an Intumescence of the Testes occasioned by a Contusion, or any external Violence; and also an Hydrocele, or Pneumatocele. Being reduced to Powder, and applied outwardly with white camphorated Ointment, they cure Venereal Buboës. The same, bruised with the Root of Turmeric, and rubbed every Day on the Part, by their astringent Virtue in consolidating the Orifices of the Vessels, absolutely cure an inveterate Flux of the Hemorrhoids. The unripe Fruit, too greedily eaten, excite a Diarrhœa, to which the Root and Bark put a Stop with the same Facility. The Oil expressed from the Fruit, boiled, taken inwardly, or applied outwardly, excites an Appetite, and helps Digestion. The same used with roasted and pounded Garlick, or fried in coagulated Milk, and applied to the Place, is an effectual Anodyne in the Pains of the Hemorrhoids. Raii Hist. Plant.

ANGELOCALOS, the true Name of the twenty-fourth Antidote of Myresius, according to his Translator and Commentator Eubsius, instead of the common Reading, *Alcancalei*. This he infers partly from the corrupted Word, and partly from the Latin Copies of Myresius, which read *Alcancaleus*, and interpret it *bonus Nuntius*, a good Messenger, the very Meaning of Angelocalos. See ALCANCALEI.

ANGELUS, a Confection. Johnson.

ANGELYN, *seu Andira*, Pison. Marggrav. *Arbor nucifera Brasiliensis, Fructu Ovi Figura & Magnitudine*. Raii Hist. Plant. The same as *Andira* before.

ANGI, Buboës, or Tumors in the Groin. Fallopius de Morb. Gall.

ANGIGLOSSI, Stammerers. Blancard.

ANGINA, from ἀγχω, to strangle, a Quinsy.

## OBSERVATION I.

A certain Butcher, about Noon, began to be sensible of a Pain about his Larynx and Fauces, which was accompanied with some Difficulty in eating and drinking; towards the Evening he went to an Apothecary, who gave him a Gargarism of Plantain and Lettice-water, Diamoron, and Vinegar. After he had used this Medicine, he was seized with intense Pain, and was suddenly choaked in the Night-time; but preserved his Senses to the last.

Upon opening his Body, the Substance or Parenchyma of his Lungs was found converted into Pus; and in one of his Sides there was also an Abscess filled with Pus. He had never been troubled with a Cough before, nor had a Spitting of Blood preceded his deplorable Fate; on the contrary, he had all along appeared to be blest with a sound and robust Body, and was so far from being meagre, that he was fat. Dodonæus, Cap. 18. Observat.

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## OBSERVATION II.

One Abraham Perrow, a Soldier in the French Service, and a Man of fifty Years of Age, in order to prevent the Consequences of an Enterocæle, submitted to Castration, which Operation was successfully performed in the Beginning of September 1677. Three Weeks after, when every thing seem'd to be in a good way, when the Consolidation of the Wound was judged to be just at hand, and the Patient beginning to walk through the Town, he was seiz'd at once with a Difficulty of Deglutition and of Breathing. As he was in imminent Danger, I was called the third Day. All his Tongue, except the very Tip, was as black as a Coal. He lay with his Breast in an erect Posture; and if any thing was given him out of a Spoon, it brought on a kind of Suffocation; for which Reason, notwithstanding his great Weakness, he obstinately refused the things that were offered him. Tho' the Season was actually cold, he would allow no Part of his Body to remain covered with Cloaths, except his Feet. I forthwith ordered a Clergyman to be called, for the sake of his spiritual Interest. I perceived all the Symptoms of an Angina, tho' nothing appeared either internally, or externally, except the Blackness of his Tongue. Hence I pronounced, that there was an internal Gangrene, the Result and Offspring, as it were, of the Inflammation which I suspected to be in the Lungs. There is a remarkable Consent between the Testes and the Breast, to which Circumstance Hippocrates [Lib. 6. Epidem.] advises the Physician to give due Attention. The miserable Patient died about an Hour and an half after my Departure.

The Wound, made in this Patient's Right Groin, being carefully inspected, the Operation, which was performed by a young Man of the Name of Colet, had all the Appearances of its having been done by the Hand of an Artift; for no Marks of an Inflammation appeared. He proceeded from below upwards in his Operation. The interior Part of his Neck was longitudinally dissected, where the Arteria Trachea was found free from every kind of Phlegmon, as were likewise the adjacent Muscles. The Gland called Thymus was swelled, stuffed with black Blood, and pressed upon the Trachea. The Thorax being compressed, there issued a Sanies from an Incision that was made in it; and when it was quite laid open, we discovered most evident Marks of an uncommon Inflammation in the Lungs; for they were distended with a very black Blood, livid, bespangled with a vast Number of black Spots, and the other evident Signs of a Gangrene, especially towards the Back. Hence it appears, that the Difficulty of Deglutition and Respiration, as also the Loss of Speech, (for the Patient could only pronounce the Letters A and O) are to be ascribed, as well as to the Compression of the Trachea by that tumid Gland, and to its being drawn downwards by the Weight of the Matter collected in the Lungs; but we had not an Opportunity of discovering the latent Abscess from which the Sanies came, because he was buried sooner than we could have wished. His Liver, which was ill coloured, and very tumid, discovered itself thro' his Diaphragm, which it had forced upwards. I heard he had a very voracious Stomach. Boneti Sepulch.

## OBSERVATION III.

In the Year 1618. there appeared in our own Country, an extraordinary and uncommon Distemper, which proved mortal to many People, and especially Children, by extinguishing or stopping their Breath. This was called by the Greeks ἀγχένι λοιμώδης, by others The Suffocating Disorder of the Fauces, or The pestilential Carbuncle; by most 'tis called Passio Anginosa, the Syriac Ulcer by Aretæus, or The pestilential Tonsillæ by Aëtius. But many things plainly point out to us, that the Disorder has its Seat in some Part higher than the Tonsillæ, which Part is the Brain; and this Conjecture of mine is favoured by the Dissection of many who have died of that Distemper, in whose Heads Grumes of Blood have been found diffused for a good way under the largest Sinuses of the Dura Mater [Severinus de Abscessibus, Tract. ult.]. We have likewise found the Nerves passing through the Foramen Occipitis, to the Muscles of the Neck, Larynx, Os Hyoides, and Fauces, very much injured in this Distemper [Thom. Bartholinus, Comment. in dictum affectum, Exercit. 1.]. See ÆGYPTIA UL-CERA.

## OBSERVATION IV.

A Man, who seemed to have been suffocated by an Angina, had nothing preternatural in his Larynx; but his Liver itself was putrified to such a Degree, that it might have been mouldered away like a Piece of Earth. The Reason was, the Abundance of Exhalations and Ichor, which flow'd from that Putrefaction, being diffused thro' the Membranes of the Larynx, so contracted it, that he died in the Space of thirty Hours, tho' there was as yet no Streightness in his Fauces; but it must be owned, that this Effect was principally owing to the excessive Load of putrid Matter contained in his Liver.

This seems to be confirm'd by a Disease incident to Horses, which we call the Vives, and which generally seizes them upon their drinking Water when they are over-heated by violent Exercises;



Exercises ; for when they are allowed to do so, the Glands of their Necks swell, and they generally die within two Days ; and, according to the Observation of *Glisson*, their Livers are found entirely dissolved into a putrified Matter. *Boneti Sepulchretum Anatomicum*.

DIAGNOSTICS and PROGNOSTICS.

That Disease which the *Latins* call *Angina*, is by the *Greeks* distinguished into several Species, each of which has its respective Name. Sometimes neither any Redness nor Swelling appear, but the Body is parch'd, the Patient breathes with Difficulty, and a general Imbecillity seizes him. This Species is called *συναγχή*. Sometimes the Tongue and Fauces swell, and become red, the Voice is intercepted, the Eyes are turned up, the Face grows pale, and the Patient is affected with Hiccups. This Species they call the *συναγχή*. Both these Species of the Distemper have these Symptoms in common, that the Patient can neither eat nor drink, and has his Respiration interrupted. The Disease is still milder, where there is only a Swelling and Redness, without any of the other Symptoms ; and this Species is called *συναγχή*. *Celsus*, *Lib. 4. Cap. 4.*

A Quinsy is a very acute Disease, as it is an Impediment to Respiration. Of this there are two Species ; one is an Inflammation of the Organs of Respiration ; the Cause of the other resides in the Breath, which is respir'd.

The Organs which are the Seat of the first Species, are, the Tonsils, the Epiglottis, the Fauces, the Uvula, and the superior Extremity of the Aspera Arteria ; and if the Inflammation spreads much, the Tongue and Inside of the Cheeks are also affected ; inasmuch that the Tongue is so enlarged, as to hang out beyond the Teeth, for want of Room in the Mouth. This is called *Cynanche*, *συναγχή*, either because Dogs are much subject to these Disorders, or because these Animals, even in Health, have a Habit of putting out their Tongues.

In the other Species, the Organs above-mention'd collapse, and are each more extenuated than in a natural State ; and an excessive Strangulation attends it, inasmuch that the Patient seems to perceive a hidden Inflammation in the Breast. *Aræteus*, *περὶ ὁξέων παθῶν*, *Lib. 1. Cap. 7.*

The Author proceeds to prove, that the Cause of this second Species resides in the Air respir'd ; but as in this he is evidently wrong, I shall omit taking more Notice of it.

In that Species of Quinsy call'd *Cynanche*, the Patients labour under an Inflammation of the Tonsils, Fauces, and of the whole Mouth ; the Tongue hangs out beyond the Teeth and Lips ; a large Quantity of Saliva is discharged ; and a viscid cold Phlegm flows from the Parts affected ; the Face is red and swell'd ; the Eyes are prominent, staring, and inflam'd ; what is drank returns by the Nostrils, the Passage into the Stomach being obstructed ; the Pain is excessive, but, in some measure, less perceiv'd on account of the violent Strangulation ; there is a Sensation of Heat in the Thorax, and about the Heart ; a perpetual Desire of fresh Air attends, tho' but little can be inspir'd, till at last the Passage thereof into the Thorax being entirely obstructed, the Patient is suffocated. In some the Disorder is readily remov'd to the Lungs, and Death is the Consequence of such a Translation : The Fever is slow, gentle, (*μαλακοί*) and not easily relieved.

If the Distemper verges towards a happy Conclusion, Abscesses are form'd here and there, either externally about the Ears, or internally in the Tonsils ; and if these suppurate slowly, and without acute Pain, the Patient may recover ; however, not without much Trouble and Danger : But if a larger Tumor inclines to suppurate, the Patient is suddenly strangled, just upon the Elevation of the Abscess into a Point. This is the Form of a *Cynanche*.

In a *Synanche*, the Parts above-mention'd collapse, and appear extenuated and pale ; the Eyes are hollow, and sunk ; the Pharynx (*φάρυγξ*, he means the Parts about the Fauces) and Uvula are drawn backward : the Tonsils retire ; the Speech is lost. In this the Strangulation is much greater than in the other, because the Seat of the Disease is in the Thorax, where the Origin of Respiration resides. These Cases are very acute, and prove fatal the very Day that they seize, sometimes even before a Physician can be called ; or, if he is called, he can seldom be of any Service, the Patient expiring before his Art can have any good Effect.

When the Disease takes a Turn for the better, all the Parts inflame, and the Inflammation is elevated into a Tumor externally. A large Tumor, or Erysipelas, appearing on the Breast, are good Signs. Hence a skillful Physician will invite the Disorder outwards, by Cupping-glasses upon the Thorax, or by Sinapisms apply'd to the Breast, or about the Jaws ; will endeavour to draw the offending Matter outward, and thus make it perspire thro' the Pores. It sometimes, however, happens, that the Disease is by these means, for a short Time, deposited upon the external Parts ; but soon after retiring, immediately suffocates the Patient.

The Causes of this Distemper are various ; as Cold frequently ; Heat not so often ; Wounds ; the Bones of Fish

sticking in the Tonsils ; drinking cold Water ; Intemperance in Drinking or Eating ; besides the ill Qualities of the Air respir'd. *Aræteus*, *περὶ ὁξέων παθῶν*, *Lib. 1. Cap. 7.*

To this Doctrine of a Quinsy, I shall add that of *Cælius Aurelianus*, who informs us, that this Distemper is called *Lycanche*, as well as *Cynanche*, because the Patient, under this Disorder, exerts a Voice like a Dog, or Wolf. But it must be remark'd, that, as *Aræteus* distinguishes betwixt a *Cynanche*, and a *Synanche*, *Cælius Aurelianus* comprehends both Sorts under *Synanche*.

It is the distinguishing Character of these two Authors, that their Descriptions of Distempers are extremely picturesque, and in this they excel all other Authors. For this Reason, I have given both, as they may illustrate and confirm each other.

One Species of *Synanche* is attended with no manifest Tumor ; in another it is visible and manifest ; one affects the Inside, another the Outside of the Mouth ; another both the internal and external Parts on the Right or Left, or on both Sides ; some, as for Instance, *Valens* the Physician, in his third Book of Cures, have given Names to each particular Distinction. That Species, indeed, which is without manifest Tumor, they have left without a Name ; but that which comes attended with a visible Tumor, if it affect both the interior Sides of the Fauces, they call a *Cynanche* ; for it causes a Difficulty of Respiration, and a Prominence of the Eyes, and a Faltering of the Tongue ; as it often happens to greedy Dogs, who, stimulated by a Sense of Hunger, fall fearless on a Piece of Meat, which, thro' their Haste, sticks in their Throat, and they can neither swallow nor bring it up again. If the Distemper only lies in one Side, they call it a *Paracynanche*. If the external Parts on both Sides be affected with a Tumour, it has the Appellation of *Hyanche*, [from *ὕς*, a Swine, and *ἀγχω*, to strangle] because the Necks of Swine are very subject to these Inflations, which the *Greeks* call *Hyai* [*ὕαι*]. If the Tumor affects both the internal and external Parts on both Sides, it is properly called, as they tell us, a *Synanche*. If it be only on one Side, a *Parasynanche*. To give Names to their specific Differences, is not material.

The antecedent Causes of this Disease are some of them occult, others evident, and common to other Disorders, but especially strained and laborious Vomiting, more particularly after corrupted Food. Ebriety also, and drinking of Snow-water, and vehement Exclamation, kept up to the same Height and Tone of Voice, which the *Greeks* call *Monotonon*, may be reckon'd among the Causes of this Disorder. It is produced also by a Catarrh, by acrimonious Food, eaten contrary to Custom, by Medicines of a hot and fiery Quality, taken inwardly, by a purging Dose of Hellebore, and in some Women by a Retention of the Menstrues. Men are more subject to it than Women ; and young Men, and those of a middle Age, than Boys or old Men.

*Asclepiades*, in the second Book of his Commentaries on *Hippocrates's* Aphorisms, defines a *Synanche* to be a Flux of Humour, or Humectation of the Fauces, or their upper Part, usually derived from the Head. But this is an imperfect Definition ; for, every Flux of Humour, which they call a Rheumatism, is the Falling down or Discharge of a copious Liquor. But in Persons afflicted with a *Synanche*, there appears, indeed, a Tumor, but no great Discharge of a Humour is perceiv'd, unless it may sometimes happen from a Pressure.

We, according to the Sentiment of *Soranus*, define a *Synanche* to be a Difficulty of Deglutition, and an acute Strangulation, proceeding from a vehement Tumor of the Fauces, or the Parts by which Deglutition is performed.

In our Definition, we join an acute or very quick Strangulation with a Difficulty of Deglutition, to distinguish this Disorder from a Tumour of the Tonsils, or Uvula. For where there is a *Synanche*, there must of Necessity be a Tumor of the before-mentioned Parts ; but it does not follow, that whenever this Tumor happens, there must presently be what we call a *Synanche* : For those who are molested with a Difficulty of Deglutition in a moderate Degree, do not seem arrived to the Pitch of a *Synanche*, since the Essence of this Affection is understood to consist in the Greatness of the Tumor, which also distinguishes the Strangulation, occasioned by this Disorder, from what is caused by the Constriction of a Cord ; for, in the latter Case, there is also a very acute and sudden Strangulation, but not owing to a Tumor. *Cælius Aurelianus*, *Acut. Morb. Lib. 3. Cap. 1.*

The Symptoms which afflict the Patient under a *Synanche*, are, at first, Pains without evident Cause, a Difficulty of moving the Neck and Throat, a considerable Discharge of Saliva, without any visible Tumor, with a dull Pain, and sensible Asperity of the Fauces ; a Difficulty of swallowing the usual Fluid which gathers in the Mouth like Spitule ; after these, an Impediment of Respiration, as if clogg'd with some gross Humour.

As the Disease increases, the Part grows red, with a manifest Tumor ; and, at last, the Fauces, Uvula, the Parts above the Tongue, and the superior Part of the Throat, are elevated



elevated by the Tumor to a remarkable Degree, which is attended with a Difficulty of swallowing whatever is received at the Mouth ; besides a Strangulation in Proportion to the Tumor, a Difficulty of Respiration, and a Nausea. If the Mouth of the Patient be open'd, a dry Tension of the Tongue, when compressed with the Finger, is perceived.

When the Distemper is increased to a vehement Degree, the Tumor spreads over the Neck and Face, the Mouth flows with Spittle, and a viscid Humour ; the Eyes are prominent, bloodshot, and the Veins appear distended.

If the Patient still grows worse, the Tongue falls without the Teeth, there is a Dryness of the Fauces, a cold Numbness of the Joints, a swift and frequent Pulse, a Difficulty of lying, especially on the Back or Side, with a frequent Desire to sit, and an inarticulate confused Speech, not without Pain.

If the Disease tends to the Destruction of the Patient, as he grows worse, he becomes livid in the Face, and speechless ; there is a Stertor in the Throat and Breast ; whatever Liquid he takes, recurs ; and there is a Failure in the Pulse, which the *Greeks* call *ασπυρία*. Some utter a Voice like a Dog, others froth at the Mouth. Upon these Symptoms Death necessarily ensues.

If the Disorder be without a manifest Tumor, there is a Slenderness of the Neck, with an inflexible Erection and Extension of the same ; the Face and Eyes are hollow, the Forehead is distended, the Colour like Lead, Respiration is extremely difficult, but with no manifest Tumor, as I said before, or Inflammation, either in the internal or external Parts. The Patient labours under an extreme Weakness and Dulness, and dies under a very quick and acute Suffocation.

If an Erysipelas breaks out about the Neck or Breast, and continues, it is very often a good Prognostic ; for it seems to signify a Translation of the Humour from the inner Parts to the Superficies. But if, in spite of all the Assistance of Medicines, the Erysipelas on a sudden disappears, it is a fatal Sign ; for it shews a Translation of the Humour from the Superficies inwards. If an Erysipelas appears not while the Distemper is in its State, nor, proceeding from the inner Parts, shews itself outwardly, but is either antecedent to the Disorder, or concomitant with it, it is, on all Accounts, a bad Prognostic. Plenty of Humour, or viscid Saliva, is bad, in the State of the Disease, but good and salutary in the Decline ; for, in the first Case, it signifies a very great Strangulation, but in the latter, a Relaxation. Sometimes this Disorder increases to such a Height, as to cause a Stricture in the Fauces, Throat, and Chin. Now a Stricture is an acute, quick, and violent Distemper, and very often continual, but sometimes intermittent. *Cælius Aurel. Acut. Morb. Lib. 3. Cap. 2.* See STRICTURE.

A Quinsey without any evident Tumor in the Neck or Fauces, (*πρόσφυσις*) but attended with violent Strangulation, and difficult Respiration, is fatal either the first Day, or the third. *Hippoc. Coac. Prænot.*

Quinseys equally troublesome with the former, as to Strangulation, and difficult Respiration, but attended with a Tumor and Redness of the Fauces, are extremely dangerous ; but, however, do not threaten so immediate Destruction, if the Redness is considerable. *Hippoc. Prædict.*

If a considerable Redness appears at the same time in the Fauces, (*πρόσφυσις*) upon the Neck and Breast, the Case is less acute ; most, who are thus affected, recover, unless the Redness suddenly disappears. *Id. Coac. Prænot.*

But if the Tumor and Redness disappear, without any external Abscess, or gentle and unpainful Expectoration of Pus ; or if this does not happen upon critical Days, the Disorder is fatal. Perhaps also the Lungs suppurate. It is therefore much the safest, when the Redness and Apostemation verge towards the external Parts. *Id. ibid.*

When the Erysipelas tends from the internal to the external Parts, it is a good Symptom ; on the contrary, when it tends from the external Parts inwards, it is fatal. It verges inward, when the Redness disappearing, the Breast is oppress'd, and the Difficulty of Respiration increased. *Id. ibid.*

When a Quinsey removes to the Lungs, the Patient generally perishes within seven Days ; but if he escapes, a Suppuration of the Lungs ensues, unless a large Quantity of Phlegm is expectorated. *Id. ibid.*

When, by reason of the violent Suffocation, the Forces are suddenly discharged, the Case is desperate. *Id. ibid.*

In Quinseys, if the Spit is dryish, (*σπέρμα*, thick and viscid) without any Tumor of the Fauces, it is of bad Presage. *Id. ibid.*

In Quinseys, if the Tumor of the Tongue subsides without sufficient Reason, it is a fatal Symptom. The Pain also vanishing suddenly, and without any manifest Cause, portends Death. *Id. ibid.*

The Doctrine of the latter Part of this *Prognostic* cannot be too often inculcated, because it is also applicable to all internal Inflammations whatever. The sudden Disappearance of Pain, without sufficient Cause, is a Sign, that a Mortification is begun.

In Quinseys, if a well-concocted Saliva is not soon discharged, the Case is desperate. *Hippoc. Coac. Prænot.*

In a Quinsey, Pains in the Head with a Fever, without any Alleviation of the Symptoms of the Quinsey, portend ill. *Id. ibid.*

In a Quinsey, Pains in the Legs, attended with a Fever, whilst the particular Symptoms of the Quinsey remain, without Alleviation, portend ill. *Id. ibid.*

Pains in the Hypochondria, subsequent to a Quinsey, terminated without a regular Crisis, together with great Imbecillity, and a Torpor, prove fatal unexpectedly, tho' the Patient, in Appearance, is upon the Recovery. *Id. ibid.*

In Quinseys, if the tumefied Parts subside, without salutary Signs, and the Pain removes to the Breast and Belly, with Tension of the Part where it fixes, a purulent Diarrhœa ensues, otherwise there will be no Solution of the Disease. *Id. ibid.*

In Quinseys, all Pains have a fatal Tendency, which do not manifest themselves externally. Sometimes Pains are translated to the Legs, which prove very chronic, and do not cause a Suppuration, without great Difficulty. *Id. ibid.*

In a Quinsey, the Spit, which is viscid, thick, whitish, and which is brought up with Difficulty, is bad ; as are all such imperfect Concoctions. In such Cases, a great Number of Stools reduces the Patient to a Paraplegia, and Death ensues. *Id. ib.*

If the Spit, which happens from a Quinsey, is dryish, (*σπέρμα*, thick and viscid) and is frequently discharged with a Cough, and Pain of the Side, it is a fatal Symptom. If the Patient cannot drink without Difficulty, and if what he drinks is driven back with a Cough, the Case is dangerous. *Id. ibid.*

A Quinsey is an Inflammation of the Fauces, attended with an ardent Pain, Tumor, Redness, a Difficulty of Respiration and Deglutition, and a Fever. It arises from a Stagnation of Blood, or of an acrimonious and viscid Serum in the sanguineous or lymphatic Tubes, and is not void of Danger.

In order to form a Judgment of this Distemper, we are first and principally to consider the Parts where it is seated, which are the Fauces, and especially the Pharynx and Larynx, with the adjacent Parts. In this are included many Parts, which are of very great Use, and of quick Sensation ; such are, the Root of the Tongue, with the Os Hyoides, the Holes of the Nostrils, which open into the Mouth, the Beginning of the Oesophagus, the Muscles of the Pharynx, with the internal and external Muscles of the Larynx, in Number thirteen, besides the greater and lesser Glandules, the Tonsils, the Muscles that move the Jaws, the smaller sanguineous and lymphatic Vessels, with the tender Branches of the Nerves.

The Quinsey is esteemed more or less dangerous, according to the Parts affected by the Inflammation, and goes under different Names on the same Account. There is a very old Distinction of a Quinsey in general, into an inward and outward Quinsey : The first is seated in the inner nervous and muscular Membranes of the Fauces, and does not discover itself by any outward Tumor or Inflammation, either in the Neck or Face ; but there is an inward burning Heat, with an acute Fever, and if the Case be worse than ordinary, not only a Difficulty of Respiration, but of Deglutition, and the Patient is in great Danger.

The external Quinsey is more conspicuous to Sight, and principally affects the external Muscles, and glandulous Parts, the Tonsils, with the Root of the Tongue, and the Uvula ; it is also more easily cured.

If we consider this Disease, more particularly with respect to the Part affected, the most terrible and dangerous Quinsey is usually that which is seated in the internal Muscles of the Larynx, and does not discover itself outwardly by any Redness, or other Symptoms about the Neck or Throat ; but the Patient is afflicted with a vehement internal Heat and Pain, and by reason of the Contraction of the Orifice of the Aspera Arteria, not only the Voice is suppressed, but Respiration is performed with Difficulty, and sometimes wholly stopped, often in so short a Time, if we believe Observation, as to kill the Patient within the Space of four-and-twenty Hours, or on the third Day. This the *Greeks* call *Cynanche*.

What they call *Synanche*, affects the internal Muscles of the Pharynx, and is, like the other, without any conspicuous external Tumor or Redness, but attended with a greater Difficulty of Deglutition than Respiration ; for what the Patient endeavours to swallow, is violently discharged by the Nostrils. But when the Tumor and Redness render themselves sensible to the Sight and Touch, the Inflammation, which has its Seat in the external Muscles of the Pharynx, is, by the Antients, called *Parasynanche*, as the other, which seizes those of the Larynx, is named *Paracynanche*.

Again, a Quinsey is distinguished, by practical Physicians, into the true or perfect Quinsey, and the spurious one.

The true Quinsey arises from a Stagnation of the Blood, but the spurious one is rather owing to an inflammatory Collection of Serum, than of Blood, in the interior Parts of the Fauces and Neck. The true Quinsey is an acute Disease, and never without Shiverings and a Fever ; the spurious Quinsey is attended rather



rather with a lymphatical and catarrhus, than an acute Fever. In the perfect Quinsey there is not only a burning and pungent Pain about the inward Parts of the Fauces, but the Tongue also is turgid with Blood, and of a dark red Colour; there is also a Redness of the Face, and a great Pulse of the temporal Arteries, which are attended sometimes with a Pain in the Head, and a Drowsiness and Numbness of the Senses, and sometimes Faintings. If the Disease be violent, there is a Difficulty of Respiration, with great Anxiety, Restlessness, and Coldness of the extreme Parts. This is a very dangerous Case, and requires immediate Relief. But in the spurious Quinsey, these Symptoms are some of them wholly absent, others less violent, and there is less to be feared under a right Management. Moreover, a Quinsey may be divided into a very hot and dry, and into a moist, or very mucous one. The former takes its Rise from the Blood, and is accompany'd with a very acute Fever, as was said of the true Quinsey. The other is more chronic, and comes attended with a catarrhus Fever, is familiar to cachectical and scorbutic Persons, and covers the Tongue and Fauces with a thick slimy Mucus, which causes a foetid Breath.

All these Species of Quinsey deserve to be distinguished from other Affections of the Fauces. The true and dry Quinsey must not be mistaken for that mucous Inflammation of the Mouth and Oesophagus, commonly called *Prunella Alba*. For in the latter, the whole Region of the Fauces, and the Tongue, are cover'd with a white Mucus, the Tongue contracts painful Fissures, and there is a burning Heat, which reaches even to the Diaphragm. This frequently happens in malignant Fevers, and is for the most part a bad Symptom, because it indicates an Inflammation of the Stomach and Oesophagus. Nor is every Inflammation of the Fauces a Quinsey, but that only which is attended with a Difficulty of Respiration and Deglutition. Wherefore there is a wide Difference betwixt a Quinsey, and a slight Inflammation of the Neck, and the internal Parts of the Fauces, with a Tumor and Pain of the Glandules, which frequently happens to scorbutic Persons, and those affected with the Venereal Disease, if it proves obstinate, and is accompanied with Erosion. The true and internal Quinsey must also be distinguished from those Spasms which are usually incident to hysterical and hypochondriacal Patients, which contract the Face, and cause a Difficulty of Respiration, as well as Deglutition. These Symptoms happen without a Fever, and soon remit, and leave the Patient, and easily give way to Medicines. Lastly, The Quinsey differs from those hot and painful Pustules on the Tongue, which they call *Aphthæ*. For those affect only certain Parts, and are accompany'd with a Pain and Redness; nor are they so constantly attended with a Fever, as the Quinsey.

The immediate Cause, then, of a Quinsey is a Stagnation of the Blood, or sometimes an inflammatory Collection of Serum in the internal Parts of the Fauces; to produce which, many things may concur. For 'tis evident, from Observation, that it is frequently consequent upon the Suppression of a spontaneous Evacuation, as of Blood, either by the Nostrils, Uterus, Hemorrhoidal Veins, or of the Lochia, or upon the Omission of an habitual artificial Evacuation, by Scarification or Phlebotomy. In Bodies thus predisposed, the Disease is soon form'd, after a more than ordinary Commotion of the Blood, drinking freely of Spirituous Liquors, violent Exercise, or even too high straining the Voice, especially in the cold Air. I have observ'd also the Beginning of an Inflammation like that of the Quinsey, after taking a pretty strong Sudorific, follow'd by a too sudden Admission of the cool Air; or taking a Draught of cold Liquor, after coming out of an over-hot Bath; which, however, by the Help of proper Remedies, both internal and external, have in a short time been happily discuss'd. A Quinsey is no less frequently generated by oppressing the Fauces with acrimonious things, which too much irritate and overstrain the Fibres and Vessels. We know by Experience, that a fatal Inflammation of the Fauces has often surpris'd those who have lived and slept in Rooms, which have been newly plaster'd over with Lime; and I myself knew several Infants kill'd at once by the same Means. That the same inflammatory Quality belongs to Caustics, is agreed by all. Among Cathartics, White Hellebore, by a kind of specific Property, communicates its Influence to the Fauces, and causes a Strangulation. Quicksilver, and especially ill Preparations of it, are known to incommode and inflame the Fauces. The same Effect is observ'd, by Physicians, to follow the Use of the *Solanum Furiatum*, and the Bite of a mad Dog. The Fumes arising from arsenical and mercurial Ores, and the Vapours of mineral Spirits, unwarily drawn in with the Breath, have a principal Tendency to promote this Disorder; for the very subtle and penetrating pointed Particles of all these Substances, deeply insinuating themselves into the Muscles which move the Cartilages of the Larynx, by there straining the nervous Membranes, and intercepting the free Passage of the Blood through the Vessels, excite an inflammatory Tumor of this kind, with a Pulsation, and a pungent Pain, which is often fatal.

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That the bare Inhesion of sharp and pointed things in these solid Parts, is sufficient to cause this Affection, is evident from the Effects which the small prickly Bones of Fish produce by sticking in the Fauces, which are very often Inflammations of this kind. You have a remarkable Observation to this Purpose in *Hildanus, Cent. 3. Obs. 42.*

By some of the before-mention'd Ways is a Quinsey spontaneously excited: But it often succeeds some other Disease as a Symptom; which happens frequently in a Diarrhoea and Dysentery, especially if the Flux be unseasonably stopp'd; of which we have a memorable Example in *Hildanus, Cent. 3. Obs. 27.* The same Event follows the preposterous repelling of an Erysipelas, or the Application of improper Topics to the Gout. The Quinsey also frequently supervenes upon the Smallpox, and malignant and pestilential Fevers. In particular, anatomico-practical Observations upon the Distemper call'd the *Hungarian Fever*, assure us, that it commonly ended in a Inflammation of the Meninges and Fauces, which spread itself to the Stomach and Oesophagus, and carried off the Patient: But the Cause of this symptomatic Quinsey might, for the most part, be found to be a too long Constipation of the Belly, an imprudent Checking of Perspiration, or a preposterous repelling of the acrid caustic Matter, upon the inward Parts. When the Distemper is epidemical, it must be attributed to some Fault in the Air, which usually, on these Occasions, has in it some degree of Malignity. It often happens in the Spring or Autumn, after a long rainy and moist Constitution of the Air, as *Hippocrates* of old observ'd, *Secl. 3. Aph. 16. 20. 22.* and *Bartholine* confirms by his own Experience, *Cent. 1. Obs. 81.* This Disorder also usually attacks those who breathe an Air impregnated with Effluvia of the Nature of a very acrid subtle Salt, communicated to it by a Multitude of Insects there residing, especially at the Setting of the Sun. From this Cause, *Hallerius, Prax. Lib. 1. Cap. 23.* assures, that the Quinsey is very common at *Rome*, and sometimes rages like the Plague.

A Quinsey is very dangerous, not only on account of the Fever, which is often acute, but the Fear of Suffocation. The most dangerous is the true, internal, and hidden Quinsey, as we said before; and of this Sort must be understood what *Hippocrates* pronounces, *Prædict. Lib. 3. Cap. 8.* "The Quinsey" "is a very terrible Disease, and soon proves fatal, if it shews" "nothing conspicuous to the Sight, either in the Neck or" "Fauces; for the same Day, or the second, or the third, or" "fourth, it strangles the Patient." The greatest Danger of Suffocation is, when the Muscle call'd the *Thyroarytenoideus*, whose Office it is to close the Larynx, is affected. The symptomatic Quinsey is also very dubious, and full of Hazard; for the Patient, by reason of the Weakness of his Body, already exhausted, and the Virulence of the Matter, seldom gets over it. It is a very bad Sign also, when the external Tumor suddenly disappears, the Symptoms not being mitigated, but rather exasperated: For, in such a Case, the morbid Matter passes over the other nervous Parts, and directs its Course either to the Brain, where it excites a Phrensy with Convulsions; or to the Lungs, where it causes a Peripneumony, which, according to *Hippocrates, Secl. 5. Aph. 10.* ends in Death. But when the suffocating Strangulation remits, and the Tumor, Pain, and Redness tend principally to the outward Parts, and vanish by degrees, it prognosticates a happy Event; if the Case be otherwise, the Disease terminates in Death, or an Abscess; if in an Abscess, and there be an Effusion of Pus into the Bronchia and Lungs, according to *Forestus, Lib. 15. Obs. 24.* the Event is very doubtful; if in Death, Frothing at the Mouth, a Tongue very much swell'd, and of a purplish black Colour, Coldness of the Extremities, an uncommon Anxiety, and Compression about the Præcordia, and a hard, convulsive, and Intermitting Pulse, prognosticate its Approach.

#### CURE of a QUINSEY.

The Method of Cure recommended by *Hippocrates*, consists in bleeding in both Arms, and opening the Veins under the Tongue, in Lambdives capable of incising the Humours, in hot Gargarisms, and evacuating a Part of the Humours by an increased Discharge of Saliva, and in shaving the Head. A Cerate should also, according to him, be applied to the Head and Neck, and over this Wool; and the external Parts must be fomented with soft Sponges, wrung out of warm Water. The Drink ought to be Water and Hydromel, but by no means cold; or Cremor of Pisan, when the Danger is judged, from the Crisis, to be over. *De Ratione Vitæ in Acutis.*

In both Species of Quinsey, if the Strength of the Patient will permit, Blood is to be taken away, even tho' it should not abound in him. The next Step is to purge. Cupping Glasses must also be applied directly under the Chin, and about the Fauces, that the Humours, which cause the Strangulation, may be invited outwards. Moist Fomentations also must be made use of, for dry ones render Respiration more difficult: Therefore Sponges are to be apply'd, which are frequently to be dipp'd in warm Oil, rather than in warm Water. Warm Bags of Salt are also of great Efficacy in these Intentions. It is also advise-



able to gargle the Mouth with a Decoction of Hyssop, or Catmint, or Thyme, or Wormwood, or even of Bran, or of dried Figs, in Hydromel; after these anoint the Palate with Bull's Gall, or the Composition which derives its Name from Mulberries. Powder'd Pepper may also, with very good Effect, be sprinkled upon it.

If these have but little Effect, the last Remedy is to make deep Incisions under the Jaws, above the Neck; or in the Palate about the Uvula; or to open the Veins under the Tongue, that by these Wounds the Humours, which cause the Distemper, may be discharged.

If by these means the Patient is not eased, we may know, that the Disease will prove fatal: But if he is so far reliev'd, as to be able to eat and drink, the Transition to Health is not difficult. In some Cases, Nature will assist, provided the Disease removes from a narrower to a wider Part. Therefore, if a Tumor or Redness arise about the Præcordia, we may be satisfy'd, that the Fauces are set at Liberty.

But by whatever means Relief is procur'd, the first Aliments which are given must be liquid, and in particular Hydromel; after these, solid Foods, which are soft, and not acrid, till the Fauces recover their usual Habit.

It is commonly reported, that if any one eats a young Swallow, he will be in no Danger of a Quinsy for that Year: And it is farther affirm'd, that if the same be preserved with Salt, and burnt, upon an Attack of this Distemper, and the Ashes are powder'd, and put into Hydromel, which is given to drink, it will be of Service. This I thought worthy of inserting, tho' I have not met with it in Medicinal Writers; because it is a popular Remedy in some Reputation, and cannot possibly have any ill Effect. *Celsus, Lib. 4. Cap. 4.*

For the Cure of a Cynanche, that Species of Quinsy which is attended with a Tumor of the Fauces, *Aretæus* advises the following Method, which, he says, must be immediately pursued; because the Distemper, being extremely acute, soon proves fatal.

If the Disorder is caused by a Debauch, either in eating, or in drinking, the Intestines must be wash'd not only with one, but with two Clysters. The first must be of the common Sort, being only intended to discharge the Excrement; the second is design'd to draw a Part of the Humours from the Tonsils and Breast; therefore let it not be simple, but made of a Decoction of Centaury, Hyssop, Wormwood, Calamint, and Birth-wort, with an Addition of Honey, and a great deal of Nitre; for these draw a great deal of Phlegm. And tho' the Patient has lived temperately, the Vein in the Cubit must be open'd, and with a large Orifice, that the Blood may flow from it with Impetuosity, and in a large Quantity; for by these means it will be more likely to moderate the Heat, relieve the Strangulation, and mitigate all the Symptoms. It will not be amiss to let the Patient bleed till he is near fainting, but not till he actually faints; for some have, upon these Occasions, died in the fainting Fit: Mean time, Ligatures must be made above the Ankles and Knees, but particularly upon the Wrist near the Cubit, and upon the Cubit near the Humerus. If the Patient can swallow easily, give him as much Elaterium as is sufficient to purge him, in Hydromel and Whey; for, of all Cathartics, Elaterium is, in this Case, the best: Cneoron and Mustard [*ῥαπὺν*] are also of Service; for both these purge the Belly.

If, by the Use of these Remedies, the Inflammation is not mitigated, bending the Tongue upwards, open the Veins on the under Side, and if a large Quantity of Blood is discharged from these, it gives greater Relief than all the rest. Let the inflam'd Parts be moisten'd with Restringtons at first, that the Inundation of Humours may be somewhat check'd; for this Purpose use Wool, greasy with the natural Sweat, and let it be impregnated with Wine, and the Oil of unripe Olives. Cataplasms also of the same Nature must be applied, as of Dates moisten'd and bruis'd with Wine, together with Rose-flowers; and that these Cataplasms may have a proper Consistence, that is, be viscid and soft, let Meal and Lin-seed, and Honey and Oil, enter their Composition.

But if it verges towards Suppuration, make use of warm Topics, as in the other Species of Quinsy: Let therefore the Meal be that of Fennigreek; and let the Powder of Frankincense [*μάρρα*] and Resin be melted; and let the Tops of Poley-mountain be strew'd in: To these add hot Fomentations, by means of Sponges, press'd out of a Decoction of Laurel-berries and Hyssop. The Dung also of Doves and Dogs are powerful Promoters of Suppuration, pass'd thro' a Sieve, and applied to the Part. Proper Lotions are prepared of Hydromel, with the Decoction of Lentils, or Hyssop, or Roses, or Dates, or of all together. The Mouth must also be anointed as far as the Pharynx, either with simple Medicines, as the Juice of Mulberries, or of Pomegranates bruised with Water, or a Decoction of Dates; or else with Compounds, as those which take their Names from Mulberries, from Rue, the Juice of Pomegranates, or from Swallows. But if there are Ulcers in the Mouth, with Eschars, proper Lotions and Gargarisms are prepar'd of Decoctions of Hyssop in Hydromel, or of fat Figs in

Water, with an Addition of *Amylum*, moisten'd with Hydromel, or the Juice of *Ptifan*, or of *Tragus*.

But in that Species of Quinsy which is attended with an Extenuation of the Parts, and is called *Synanche*, all possible Endeavours must be used to invite the Humours, and the Heat, and the Flesh, outwards, that all the external Parts may swell: Let therefore the Embrocations be hot, and made with Rue and Dill, with an Addition of Nitre; and let the Cataplasms, above specify'd, be laid on with these. It will also be of Service to apply a Cerate, with Nitre and Mustard, in order to excite Heat; for Heat in the external Parts contributes much to the Cure of these Disorders, and to the Swelling of the Neck; and a Tumor, rising externally, preserves the Patient from a Peripneumony; but if it retires inward in a Quinsy, it is a fatal Evil.

Those who, apprehending the Suffocation in a Quinsy, make an Incision in the *Aspera Arteria*, in order to render Respiration easy, do not seem to me to have confirm'd this Practice by Experience; for the Heat, arising from the Inflammation, is increased by the Wound, and adds to the Fatigue and Danger of the Strangulation and Cough: Besides, if the Patients escape this Danger, the Lips of the Wound will not unite, because, being cartilaginous, they cannot heal. *Aretæus de Curatione Acutorum, Lib. 1. Cap. 8.*

There is, after this, something omitted in the Copies of *Aretæus* now extant; for *Aetius* quotes some things from this Author, not to be found here, as is specified below.

By *Nitre*, *Aretæus* means *Natron*, a Salt very different from our *Nitre*. See ANATRON.

*Cælius Aurelianus* has preserved the Practice of a great many of the antient Physicians, which would otherwise have been lost to us; and is very free in finding Faults, for which he sometimes gives but indifferent Reasons. He was of the Methodic Sect, and as he believed the Causes of Diseases resided in the Solids, and were nothing but too tense or lax a Tone of their Fibres, he reduced most Diseases under two Heads, which were those of *Stricture* and *Solution*: Thus, for Instance, a Phrensy was, with him, a Disease of *Stricture*; but a Diarrhœa, on the contrary, was called a Disease of *Solution*.

The Patient under this Distemper must lie in a lightsome Place, moderately spacious, warm, and free from offensive Smells. Air, thus qualify'd, is of a laxative Disposition, and proper to insinuate into the tumid Parts. The Posture of Decubiture ought to be supine, the Head a little raised, in a firm and immoveable Position, or one in which the Patients say they find most Ease; for all Motion is painful to Persons labouring under a Tumor. The Neck and Breast are to be cover'd and cherish'd with clean, soft, and undy'd Wool, dipp'd in warm sweet Oil, not omitting gentle Frictions of the Joints; for the Relaxation, consequent on Perspiration thus promoted, is communicated to the affected Parts.

Rest and Abstinence are to be injoin'd for the first three Days, together with a laxative Gargarism. Fomentations with warm sweet Oil are to be used, and Bladders, half-full of the same, are to be applied to the outward Parts. If the Disease be violent, Phlebotomy is to be administer'd within the three Days; for quick and sudden Bleeding is necessary for a most speedy Relaxation. If there be no urgent Necessity, Bleeding may be omitted till the third Day, or, if the Strength continue, till after it, and then used, if any emergent Occasion requires it.

The Person to whom Bleeding has been administer'd within the three Days, is afterwards to have his Head and Neck fomented with hot sweet Oil, and have some of the same instill'd into his Ears; and then to use a Gargarism. His Drink must be warm Water, or Mulsun, and not by Draughts, but Sippings, lest the tumid Parts should be irritated by a troublesome Deglutition and Percussion.

If we bleed the Patient on the third Day, he must afterwards have his Body anointed round with sweet Oil warm'd, and his Face moderately fomented with warm Water; then we may give him forbile Food, but very thin or fluid; or else some Bread dipp'd in Mulsun.

If Deglutition be difficult, so as to prevent the Sick from receiving into his Stomach what is given him for that Purpose, it will be sufficient, for supporting his Strength, to instil Mulsun, Drop by Drop, into the Fauces. We must also continue to give him Food every other Day, till the Decline of the Distemper.

It will also be convenient, for some Days after Phlebotomy, to make use of Cataplasms, which may be outwardly applied, round about the Neck, but let them be of the mild and simple Kind; such as hot Bread dipp'd in Water and Oil, or carefully mollify'd in Mulsun, or Flour of Wheat, or Barley, or Lin-seed, or Fennigreek. The fore-mention'd Simples may singly, or mix'd together, be taken out of warm Water, Oil, or Honey, or a Decoction or Infusion of the Root of Marsh-mallows, and so applied. These Cataplasms are frequently to be chang'd, lest, by long Continuance on the Part, they contract a Sourness from the corrupt Exhalations of the Body. They



are also to be heated, that their Vapour may continue the longer ; and outward Applications are to be made of Sacks of Bran boil'd in Water, or Bladders half full of hot Water and Oil. The Vaporation of Sponges, squeez'd out of warm Water, alone or mix'd with Oil, or a Decoction of the mild Laxatives, is good in this Case. Sponges are also to be applied to the Neck and Throat, and those Parts which, by their Swelling or Inflammation, hinder Deglutition, or to the Mouth and Nostrils ; the Patient also is to be exhorted to suck in the Vapour with open Mouth ; for Vaporations received this way descend deep, and relax the Tumor.

Gargarisms are to be used, which have a Congruity with Cataplasms, such as warm and sweet Oil, or hot Water and Oil ; also Mulsim, diluted with Water, and boil'd ; Milk alone, or mix'd with Honey or Water, so that there be an entire Detersion of all the curdling Parts ; lest, if any should remain, they might contract a Sourness from the Heat of the Places.

We are also to make use of a Decoction of Bran and Liquorice, or of Lin-seed and Fenugreek, but never boil'd to the Thickness of a Cremor ; lest by its viscous Tenacity, in Conjunction with the Viscidity of the Humours, it should occasion a Difficulty of Respiration. Besides these, the Decoctions of Marsh-mallow, Wild-mallow, Syrian Sebestens, Club-moss, fat Dates, or juicy Figs, are all recommended, as well as the Juice of Alica, or Ptsan.

When the Disease begins to decline, *Sybaritic*, *Cretic*, and Raisin Wines are proper : But as for light Astringents, and what they call Inspissants, [*Stymmata*] I think them at this time inconvenient ; for these are Remedies that we use in the Beginning of the Disorder, while the Symptoms are light, and the Patient only complains of a slight Pain in the Fauces and Uvula ; for *Theffalus* himself orders *Posca*, when he is call'd to attend those who are threaten'd, but not actually seiz'd, with a Synanche.

In short, we must make use not only of *Posca* ; but of a Decoction of gentle Astringents, such as Roses, *Thebaic* Dates, Lentils, Myrtle, Lentisk, and Mastich, any one of which may be boil'd in Mulsim, or some other of the fore-mention'd Juices, whenever we find, that their astringent Quality requires Correction by the Mixture of a laxative Liquor. The Juice of Rice also is of Service, and the Medicine call'd *Diacodion* dissolved in Mulsim, and oftentimes in Substance, if the Fauces are anointed with it. Of the same Virtue are Diamoron, Diamyrrhion, the Troches of Andron, and the Sphragis of Polyidas, Anthera with Honey, and all Medicines prepared of Quinces or Pomgranates, Roses, the Rinds of Pomgranates, Galls, the Juice of unripe Grapes, Box-thorn, and the like.

But when the Disease is form'd, we are to do as before advised ; besides which, if we find the Humours, which are condensed by the Heat, become glutinous, and appear outwardly, we deterge them with a hot Sponge ; but if they lie deep, the Dipyrene [an Instrument for cleansing the Throat] must be introduced, with its Head wrapp'd in fine soft Wool ; for the thick and viscous Humours, if suffer'd to remain, would accelerate Suffocation. If they lie so deep as to be out of Sight, they are to be attenuated by taking Mulsim, but boil'd beforehand, which makes it of greater Efficacy ; some give Ptsan mix'd with a little Salt.

All Medicines endued with a sensibly biting Quality are to be avoided ; for, by irritating the Tumor, they would incrassate the Humours flowing to the Part.

If the Belly does not perform its Office, Clysters are to be used of warm Water and Oil, sometimes with, and sometimes without Honey ; for the Vapour which ascends from the Liquor relaxes the tumid Parts about the Neck, and an exonerated Belly causes a free Respiration, not only under a Synanche, but even in Health ; whereas an undue Retention of the *Fœces* burdens Nature, and, by a sort of Compression, is the Cause of very acrimonious Exhalations in the Body, by which Tumors are irritated, and the Head fill'd.

After a Clyster, Cupping and Scarifying will be proper in the Time of Remission ; but if there be a Continuation, and the Disease proceeds without remitting, they are best applied, as well as other *distriktive* Remedies, (which take away Stricture) at the Dawn of Day. Cupping Glasses then are to be applied to the Fore-part of the Neck, or to the Throat, which Places were by the *Greeks* call'd *Antherona* ; also to the hinder Part of the Neck, and those large Nerves which they call *Tenantes*, and one to each Part under the Pits of the Ears, [*sub Aurium Lacunis*] in which Places the Position of the Fauces is plainly to be observed.

But if the Disease does not abate, and the Patient is too delicate for this Method of Cure, and fearful of being touch'd with the Point of a Lancet, we are obliged to apply Leeches, which the *Greeks* call *βδῖλλαι*, to the Places we have mention'd ; and if, after they are fallen off, the Evacuation they make is not sufficient, we take care to apply Cupping Glasses to the Punctures they have inflicted, in order to draw off as much as shall be requisite ; besides, we use Fomentations of Oil, with proper Cataplasms and Vaporations. After these we ply the Pa-

tient with Epithems infused in hot Oil, and vaporate with Sponges squeez'd out of the same Matter ; for we disapprove the dry Vaporation by Sacks, as capable of Condensation. In an extraordinary Tumor we scarify also the Tongue, with the Fauces and Palate, by means of a slender and pretty long Bleeding-lancet [*Phlebotomus*] ; for the tumid Parts are relax'd by drawing off Blood from the Places.

After Scarification we use mild Gargarisms, and if the Disease begins to decline, Unctions of the Fauces, or of the interior Parts, as with boil'd Honey, or with a Medicine prepar'd of a Decoction of the Wild-mallow, with the Seed of Fenugreek, Lin-seed, Amylum, Honey, and Oil ; or with stoned Raisins bruised, with Bread ; or a Decoction of Linseed ; or with Honey, and *Cretic* Raisin-wine, in which have been boil'd the Root of the Wild-mallow ; or the Flour of Alica and Linseed.

If the Distemper continues without Abatement, we use Scarification a second or a third time, not only of the Throat, or Parts adjacent to the Tonsils, which the *Greeks* call *Antheron*, and the great Nerves of the Neck call'd *Tenantes*, but to the hinder Part of the Head, the Scapula, and Inter-scapula, which the *Greeks* call *Metaphrenon*, and to the Breast : For tho' the Parts administering to Deglutition be most eminently affected, other Places of the Body suffer by Consent.

Many there are, who, not understanding the Method of subduing the Disease, but only labouring to divert the peccant Matter, and placing the Causes in the Fluids, advise above all things to apply Cupping Glasses to the Groin, then to the Region of the Diaphragm, then upon the Breasts, with Scarification ; after this they apply the same to the Throat, the Neck, and the Parts thereto belonging.

If the Disease be evidently on the Decline, we should diet the Patient upon Pulse [a Sort of Panada] and poach'd Eggs, or Hog's Brain, utterly rejecting all acrimonious, hi-leason'd, heating, viscus, rough or dry Food, or whatever may irritate the Parts appropriated to Deglutition ; for the Disorder easily returns on a very slight Occasion. We should also apply Cere-cloths, prepar'd with sweet Oil, or *Oleum Cyprinum*, or Gleucinum, or Irinum, or Malabathrinum, [*see the Composition of these Oils under their proper Adjectives*] with the Root of Marsh-mallow. Then let the Patient bathe, and afterwards drink Wine. *Caelius, Acut. Morb. Lib. 3. Cap. 3.*

Among the Antients, *Hippocrates*, in his Treatise upon the *Cnidian Sentences* (on Regimen in acute Diseases) tells us, that Patients under a Synanche are to be bled in both Arms ; but this must be avoided ; for a coarctated Effusion of Blood may cause a Fainting, for which Reason we are restrain'd from taking away so much as would be sufficient for relaxing the Stricture.

He also directs the Opening of the sublingual Veins, which is not only useless, but hurtful ; for the Matter, flowing in great Abundance to the Passage, is there stopp'd for want of sufficient Vent, and fills the Parts ; which by this means are rather loaded by the Accession, than relieved by the Recess of Matter.

Again, a Fillet is to be bound about the Neck, in order to raise the Veins, and especially when the Synanche is without any manifest Tumor. Now a Fillet, as every body knows, must increase the Difficulty of Breathing : Besides, 'tis very certain, that the Flux of Blood from the foremention'd Veins is difficult to be stopp'd ; for we can apply no Restraining to the Place without Danger, and 'tis impossible to tie the Veins. 'Tis also natural for Tumors, after opening, to incline to an Hemorrhage.

The Author afore-mention'd uses warm Gargarisms and Vaporations, but with what Ingredients, he does not tell us : He then orders the Head to be shaved, and to be incessantly vaporated with Sponges, and then cover'd with a Cere-cloth and Wool. He allows his Patients, for Drink, warm Water and Mulsim ; and, in the Decline of the Distemper, feeds them with Cremor, of what Kind, he does not specify ; being ignorant also, that this Decline generally happens not till after five or six Days, and Abstinence from Food during that Time would be unreasonable. Vaporation ought indeed to be used, but not to the Head more than to the Neck, and the Beginning of the Throat, which the *Greeks* call *Antheron*. After Vaporation, the Part must be kept warm ; and in the Decline of the Disease a Cere-cloth is to be applied.

Moreover, as to Drink, he does not tell us in what Quantity, nor after what Manner, nor at what Times he allows it. Again, in his second Book of *Diseases*, he says, they ought to be relieved with Clysters, and purging Medicines, which the *Greeks* call *Cathartics*, by whose Acrimony the tumid Parts are the more exasperated.

As to bleeding in the Parts situated under the Breast, we judge it hurtful and needless ; hurtful, because many Bodies must be divided, for 'tis not easy to come to the Sight of the Vein ; and needless, because Blood may, with Ease, be taken from the Arin to very good Purpose ; besides, the continued and joint Detraction of Matter by Clysters, Purgatives, and Phlebotomy, is plainly intolerable.

Again,



Again, if there be great Danger of Suffocation, says he, the Auliscus, which we may call the Pipe of a Clyster, must be intruded into the Fauces, and the Patient must receive by this the Fumes of burnt Hyssop, Sulphur, and Bitumen. Here is certainly a Mistake; for he tries to thrust a Pipe into the Fauces, when, through the Violence of the Disease, they can't admit the thinnest Air; and he thinks the Patients ought to be fill'd with an austere Smoke, by which sound Persons are often affected with a Suffocation.

In the last Place, he approves of Phlebotomy in both Arms, and in the sublingual Veins, which we have condemn'd, and proved to be of no Service; for it cannot be done without great Molestation to the Body.

*Diocles*, in the Book which he wrote upon Diseases, their Causes, and Cures, says, That sanguine Persons should be blooded in both Arms; but those who do not abound with Blood should only be scarified. Then he would have the Patients continually anointed with Bull's Gall, mixed with Herba Pedicularis, which they call *Stavefacre*, and Nitre, and *Cnidian* Grains, and have the same used for Gargarisms. He also prescribes Pepper to be held under the Tongue, the Neck to be vaporated with Sponges, and covered with Cere-cloths, ordering the Sick to be extenuated beyond all Reason.

As for our Part, we approve of Phlebotomy, not only for the Sanguine, but for all Persons affected with this Distemper, if their Strength permit, tho' not in both Arms, as we said before; nor are we for those extremely acrimonious Ointments and Gargarisms, nor do we use any such Inunctions in Tumors of the Eyes. For *Stavefacre* will bring a Synanche upon a sound Person, by causing a sudden Inflammation of the Fauces. Nor is it agreeable with Medicine to reduce the Body, or its Habit, by Extenuation, but to relax the tumid Parts by proper Remissives.

*Praxagoras*, in his fourth Book of Cures, treats his Patients under a Synanche, with Clysters, and extenuates them by Sweating; sometimes he uses Phlebotomy, and administers a vomiting Medicine, which they call an *Emetic*. Then he cuts off the Uvula, or sometimes scarifies it, and heals up the Wounds with Tar. We are content, that others should give their Opinion of this Method; for excessive Vomiting, by Distention and Suffocation, has often been mortal, and a tumify'd Uvula wants Relaxation, not Amputation, as well as other Parts of the Body, which must, of Necessity, be relaxed by soft and gentle Means.

*Erassistratus*, in his second Book of Anatomies, in which he treats of Diseases in particular, prescribes, in some Cases of a Synanche, Vaporation with Sponges, Cataplasms, and a Medicine, which he called a *Catapodium*, [Pill] prepared of Castor, to be taken in Wine. But he did wrong in every Particular; for Wine is an Astringent, and every one knows, that Castor is of a very acrimonious Nature, and consequently both contrary to a Tumor. *Herophilus* has said nothing of a Synanche.

*Aesclepiades*, in his second Book of swift, or acute, Diseases, says, That Persons under a Synanche are to be treated with Bleeding, Purging, Cataplasms, Collutions of the Mouth, Gargarisms, with attenuating and opening Inunctions, such as those prepared of Hyssop, Origanum, Thyme, Melilot, Wormwood, Decoction of Figs, Nitre, *Stavefacre*, Centaury, Elaterium, Bull's Gall, Resin of Cedar; to which he adds, the Use of Cupping and Scarification. He denies that Blood can be drawn by Cupping, either, says he, because this Disease is attended with a Fever, or else, by the Prevalency of the efficient Cause of the Tumor, the Heat of the Cupping-glass is over-powered, and diverted the contrary way, so as to be incapacitated for Detraction. Phlebotomy he advises to be exercised in the Forehead, in the Corners of the Eyes, in the sublingual Veins, or in the Arm. If the Disease be violent, the Fauces are to be scarify'd, that is, the Tonsils, and the Parts above the Uvula; for the principal Relief may be expected from an equal and even Incision in those Parts, which he called *Homoiotomy*. Besides, he approves the Opening of the Aspera Arteria, agreeing with the Antients, who call it *Laryngotomy*.

In this Method of his, the Mistakes are many and various; for whatever is of an acrimonious Nature, is an Incentive to the Humours; Phlebotomy also is hurtful to the affected Parts, as we shew'd before. Besides, he is guilty of an Absurdity, in directing the Use of Clysters, in order to divert and derive the Matter from the suffering Parts, because it is contrary to the Evacuation of those Parts, by cutting their Veins, to which he gives his Approbation. He was wrong in judging, that Scarification was to be used first, and then the Veins to be cut; for we are utterly against those local ways of draining the Part, while the Disease is in its confirm'd State. Besides, it argues a Physician of little Experience, to imagine that the peccant Matter cannot be drawn out by the Attraction of a Cupping-glass, because a Fever hinders; since we commonly see those Glasses produce their Effects without Impediment in Fevers, and to extract Matter; for Flesh, Blood and Spirit, are attracted and drawn together by their Force. It is to be consi-

dered also, that we do not use Cupping-glasses whilst the Fit is increasing, when the Matter is retired into the interior Parts.

Again, Scarification of the tumid Parts is very troublesome, and also dangerous; for it causes vehement Hæmorrhages, and such as cannot be stopped. For if we endeavour to restrain them, speedy Suffocation will be the Consequence; and if we let them alone, a more speedy Death appears to be the Effect of this Effusion of Blood; or if the Patient escapes an Hæmorrhage, he will not avoid a Cancer, or a Gangrene, from the Increase of the Tumor: For since we very often observe, that those Parts, which are perfectly sound, and in their natural State, do yet rise into a Tumor, when scarified, tho' treated with Astringents; we may very well expect, that Parts already swelled, if they should be scarified, and have not the Assistance of Astringents, should swell to a more vehement Degree. Certainly, in so considerable a Tumor, and so exasperated as not to bear the Touch of a Finger, and where the Patient can with much Difficulty suffer the Use of Cataplasms and Gargarisms, a deep Incision, or scarifying of the interior Parts, must necessarily be hurtful and dangerous.

As to opening the Aspera Arteria, which they call *Laryngotomy*, for the sake of Respiration, it is a mere Fable, and has no Authority of Antiquity, but is a rash and unreasonable Invention of *Aesclepiades*. But to spend no more Time in confuting this Author, nor use too few Words in shewing our Abhorrence of so desperate an Operation, we shall answer him more at large, in a Treatise we design to write on auxiliary Remedies [*Adjutoria*]. *Themison*, who approves of *Aesclepiades*'s Method of curing acute Diseases, which are not attended with a Fever, incurs the same Censure with him.

*Serapion*, in his first Book of Cures, for a Synanche, prescribes Evacuation by Clysters, and Phlebotomy, and recommends the Use of acrimonious, irritating, and aperitive Cataplasms and Ointments, which they call *Anastomatotics*. He is also very rigorous in injoining Abstinence.

This Physician also lies very open to Censure; for every body knows, that Tumors are irritated by acrimonious and attenuating things; and Phlebotomy, in Conjunction with Clysters, is acknowledged to be very troublesome and embarrassing. Again, in enumerating the Names of the Materia Medica, he omits those which enter the Composition of Auxiliary Remedies, tho' Meat and Drink are of no less Importance than any other Auxiliary Remedy whatsoever, when under a due Regimen.

*Heraclides Tarentinus*, in his third Book of Cures writing of Internals, tells us, that "To those who labour under a Redundancy of Blood, we first prescribe Evacuation by Clysters, and then use Phlebotomy, sometimes in the Arm, sometimes in the Sublingual Veins. We also make use of Vaporations to the Neck and Throat, with Sponges dipp'd in warm Water, which has had Rue and Penroyal boiled in it." Then he gives his Approbation of a Cataplasin, which we call *ἀπὸ λύσης*, prepared of Mulsin, mixed with Ground-pine, *Illyrian* Orris, or Figs. At Night, he says, we must apply a Cere-cloth prepared of Oleum Irinum, with Rozin and Wax, of each an equal Weight.

In Cases where he suspects a Thickness of the Juices, he orders the Fauces to be anointed with Honey and Omphacium, and prescribes for a Gargarism, Mulsin, in which have been boiled Figs, or Origanum, and Pepper mixed with it. He also uses Elaterium to the Weight of seven Drams, (an immoderate Dose) and gives to many five Grains, in Hydromel or Mulsin. After these he administers a Remedy, which he calls an *Emetic*, that is, of a vomiting Quality; and is thus prepared:

Take, says he, of Origanum and *Hercules's* Alheal, each a Handful, and put them in a copper Vessel; then take of what we call *Red Sumach* [*Rhus rubrum*] two Pounds, and twenty *German Onions* [*Cepula Germanæ*, perhaps Squills] the outer Rind peeled off; and shaking them together, put them into the Vessel. Pour upon them two Pints of *Chian*, *Rhodian*, or *Cnidian* Wine, and set them to stand in the Sun twenty Days before the Rising of the Dog-star, and twenty Days after. When the Liquor is consumed, put in another two Pints, and leave it to stand in the Sun; at last, put the Whole into a Mortar, and make it into Troches, the largest of a Dram and half, others of a Dram, and the least of half a Dram, to be given one at a time, with respect to the Strength of the Patient, in Mulsin, or like an Electuary in Honey; for it promotes Evacuation of the viscidus Humour by Vomiting, and loosens the Belly. Some, he says, add Melantheria, and half a Dram of the Juice of Thapsia. If the Patient be difficult to vomit, a Feather dipp'd in old Oil, and intruded into the Fauces, will promote it. Sometimes he makes use of a Medicine prepared of Omphacium, Elaterium, and Diagrydium, with black Hellebore and Salt, if



If the Patients are difficult to vomit; or he uses Elaterium with Vinegar and Rue, or Elaterium with Mustard and Salt.

As for those who fall into a Synanche, from taking Cold, he says, we forbid them Bleeding and Clysters, but in all other Cases we use them: He also orders his Patients to be supported or dieted with nothing but Water, or Mulfum.

But all these Experiments, or Essays, seem to be nothing but ready Expedients to answer some dubious Conjectures. For an Empiric, who has nothing in View but *Observation*, which they call *τῆσις*, thinks Phlebotomy proper only for the Sanguine, not considering, that all Synanchical Patients, if Strength will permit, ought to be blooded, on account of the Vehemence of the Stricture. In short, when he forbids Bleeding under a Synanche, occasioned by Cold, he deserves to be laughed at, for overlooking the present Case, and inquiring into the Causes.

The Cataplasms, which he advises, are also hurtful, and so is his Vaporation, on account of the Acrimony of the Ingredients, which are of a fiery Nature. Also his vomiting Medicines, which he calls *Emetics*, cause Swellings where none were before. For the ferulaceous Plant, which they call *Thapsia*, is sufficient to burn the Parts to which it is applied, and to inflame those which are sound and in their natural State. The same Judgment is to be form'd of those which are composed of Onion, Omphacium, and Red Sumach, and such-like; old Oil also has an acrimonious Quality. What he calls *Cathartics*, which we name *Purgatives*, to be administered Clysterwise, cause a great Disturbance in all Humours, and Molestation to the Stomach, and other nervous Parts. It also argues Negligence to prescribe no Time when the Patient should take his Food.

There are some Physicians also of our own Sect (*the Methodic*) who, being still addicted to the Errors of the Antients, have given their Approbation to unusual and violent Remedies; sometimes advising human Urine or Ordure, with Honey, Myrrh, and Rue; sometimes Centaury, Wormwood, Southernwood, Thyme, Birthwort, Tymbræ, which we call *Satureia*, [Savory] and Mustard; sometimes one shall prescribe the *Pythagoric* and *Hyperian* Troche, so called from their Inventor; another advises what they call the *Sphragis* of *Polyidas*, and Constrictives, with Unctions, and Cerates of the Ointments of Sampfuchus and Rosemary; all which Medicines, through their excessive Heat, with their drying and drawing Qualities, are provocative of a Tumor; whereas the Disease is vehement and precipitate of itself, and ought to be treated with gentle and simple Medicines. *Cælius Aurelianus*, Lib. 3. Cap. 4.

For the Quinsy,

Take of Laser of *Cyrene*, if it can be procured, if not, take the *Syrian* Laser, and diluting it with Water, anoint the Fauces therewith by means of a Feather, laying it on pretty thick; or use Euphorbium diluted in the same manner.

Take of Ox-gall, Salt, Vinegar, Honey, old Oil, equal Quantities; mix them well together, and therewith anoint the Fauces for a good while together, using a Feather for that Purpose: Or,

Take Fennel-flower fry'd, two Drams five Grains; Pellitory of *Spain*, one Dram two Grains and an half; Sagapenum, thirty-one Grains; powder them together, and make them into a Mass with Honey.

A very good Medicine is composed of

Ox-gall, two Drams five Grains; Elaterium, one Dram two Grains and an half; the Seed of Rosemary, one Dram two Grains and an half; powder them, and make them up with Honey. Anoint the Fauces with this diluted in warm Water, and compel the Patient to swallow as much of it as possible; for it loosens the Belly, and in so doing gives great Relief. *Scribonius Largus*, Cap. 16.

Of human Dung I have the following Experiment:

A certain Person was frequently afflicted with Phlegmons about his Throat, in such a deplorable manner, that he was in Danger of Suffocation, and to prevent it was obliged to bleed. He happened to meet with a Person, who promised him a Remedy, and desir'd, that whenever a Phlegmon arose again in any Part of his Throat, he might be sent for before Bleeding. Being called, he anointed the Part with his Medicine, and cured the Man immediately. He had the same Success upon others, who laboured under the same Disorder, till, at length, the Gentleman, who was in continual Danger of being suffocated, and was besides rich, and of a liberal Disposition, desired to purchase the Receipt. When they had agreed on the Price, the Seller says to the other, "This Medicine has its Virtue from

"Antipathy, which Antipathy consists in that the Person who is cured, should be ignorant of its Composition." He therefore prevailed with him to substitute another in his stead, on whose Fidelity he could depend, and to whom the Secret might be communicated, upon his taking an Oath to discover it to no Person while the Author lived. After the Author's Death, the Person entrusted cured not only the Purchaser, but others, with this Remedy, and freely and heartily offered to communicate the same to me, tho' I never asked him. It was the Dung of a Boy, mixed with *Attic* Honey, dry'd and pulverized. The Boy, according to the Author's Prescription, lived on Lupines, such as we usually eat with Bread that is well baked, and seasoned with a moderate Quantity of Salt and Leaven. The Boy's Drink was old Wine; but both that and the Lupines were in moderate Proportions, that he might be able to make a perfect Concoction. When the Boy had been thus dieted for one Day, he did not take his Dung the next Day, but still fed him in the same manner, and the third Day he saved his Dung. He preferred Lupines, avoiding other Food because of the Stench; but he who told me, said, that he had often, for Experiment sake, given the Flesh of Fowls and Partridges well boiled, and served in Water, or small Broth, and that the Medicine operated never the worse. *Galen. de Simplic. Medic. Facul. Lib. 10.*

A Stoppage from a Quinsy is to be looked upon as a dangerous Case, and so much the more if the Inflammation be seated inwardly, so as that no outward Sign appears, and especially if both the Tonsils and the Uvula are inflamed. In this Circumstance, immediate Recourse is to be had to Phlebotomy; but if the Patient be unfit for it, he is to be scarify'd upon the Shin-bones, and suffered to bleed plentifully, acrimonious Clysters are to be used, Abstinence is to be enjoined, and drawing Medicines are to be applied to the Neck; for if the Matter lodged in those Parts can be attracted outwardly, so as that a Tumor arises, there is good Hope of saving the Patient. The Cremor of *Ptisan*, mixed with thin Honey, is to be used for a Gargle, or a Decoction of dry'd Figs, or of Hyssop, Origanum, and Horehound, by which means the gross and glutinous Humours, fixed in those Parts, are digested. *Oribasius de Loc. Affect. curat. Lib. 4. Cap. 71.*

*Archigenes* says, that the Cause of a secret or inward Quinsy, in some, is to be ascribed to the Nerves which serve the Stomach: These being disordered, occasion an Inflammation in the subjacent Parts, which are the Heart and Lungs, the Principles of Respiration, from whence it is communicated to the Arteries called *Carotides*, and the Parts adjacent. The Reason why the Patients in this Case are not apoplectic, is, that the Cause of this Disease is only an Intemperies, without a Compression of the Parts. Medicines of an emetic Quality, says the same Physician, are proper in this Quinsy, such as Elaterium, and Squama *Æris* with Honey, anointed upon the Part. "I relieve many, says he, under an inward Quinsy, with a Gargle of Mustard-seed, and soon after carry them to the Bath; by which means I have saved many, and restored them to Health by a Distribution [of the Matter] over the whole Body." *Aretæus* advises [*This is not found in the Works of Aretæus, which are extant*] to apply a Cupping-glass first below the Navel, and soon after to the Sides, Back, and Scapule, still removing it from place to place, and setting it on in such a manner as to draw from the upper Parts downwards. If the Patient be much oppressed, bruise Mustard-seed in Water, and, spreading it upon an old Rag, apply it to the Breast. Let a Liniment also be prepared of Mustard-seed, Nitre, Hyssop, roasted Squills, Sulphur Vivum, of each an equal Quantity; to be well mixed with a small Spoonful of Honey, and so given. So far *Aretæus*. In Phlebotomy, the Orifice of the Vein must not be made so narrow, that the Blood being in a manner strained, the thicker Part of it, which is the Cause of the Affection, might be left behind. If any thing forbids opening of a Vein, Clysters are to be given of the Decoction of Centaury, Wormwood, Calamint, and Birthwort, mixed with Honey, and a good deal of Nitre. The Patient is also to be purged with Phlegmagogues, of which Elaterium seems most proper sometimes in a Quinsy; but it ought never to be taken but in Whey, with Carduus Benedictus boiled in it. Pills of Aloes and Coloquintida are also good, if the Patient can swallow them. It would be proper also to infuse three Drams of Hiera *Archigenis*, in one of the before-mentioned Decoctions, for a Clyster, when the Belly has been already cleansed by a preparatory Clyster before. After general Evacuations, Cupping-glasses are to be applied; and if there be any Tumor about the Jaws, or under the Chin, they are to be affixed on the same, and the Place is to be scarify'd, a good deal of Blood extracted, and the Incisions sprinkled and rubbed with Salt. If no Tumor appear outwardly, as in the occult Quinsy, the Cupping-glass is to be apply'd under the Tendon of the Neck, near the first Vertebra, and often removed, with a constant Attraction, by which means the Dislocation and Luxation of the Vertebrae are well prevented. After some Rest, from the Remedies above-mentioned, Cataplasms are to be used both on the same and



the next Day. But our principal Dependence for the following Days is, on Lituses and Gargles; therefore if the Distemper at first be very inflammatory, we begin with mild Astringents, such as a Decoction of Roses, Lentils, and Dates, an Infusion of Rose-leaves in Hydromel, a Decoction of Sumach in Hydromel, or a Decoction of Sebestens. If there happen an Excoriation of the Parts, the Cremor of Bread is to be given warm, or the Mouth is to be washed with a Decoction of Bran, or Milk alone. "I, says *Archigenes*, am always provided with a dry Medicine, which consists of eight Drams of common Sumach, four Drams of Rose-leaves, and two Drams each of Costus and Saffron; these I put in Hydromel, and use as a Gargle, with which I have very easily cured Inflammations and Ulcerations of the Tonsils, which threatened very bad Consequences." The milder Lituses are very agreeable to the inflamed Parts, such as the Cremor of common Sumach, boiled in Hydromel to a solid Consistence; but the Sumach is first to be macerated, till the Hydromel be deeply coloured, and taste strongly of the same. The Juice of a whole Pomgranate, Rind and all, bruised, and mixed with a third of its Quantity in Honey, and the affected Parts anointed with it, is a good Medicine.

If the Disease yields to none of these Remedies, but the Conflux of Humours increases, the Veins under the Tongue, or those in the Forehead, or about the great Canthi, [inner Corners of the Eye] are to be cut, the Neck is to be wrapp'd in Cloths moistened with warm Oil, which must be often renewed; or apply a Cerate, prepared with Oleum Cyprinum, or Oleum Gleucinum, or Musteum [Oil of Cyperus, and Oil prepared of Must, that is, Wine unfermented: See the Preparation of these Oils under the Words CYPRINUM and GLEUCINUM]. If the Disease continue long, you must expect an Abscess, in which Case it will be very convenient to wash the Mouth with a Decoction of Figs, which will be rendered much more effectual by an Addition of Hyssop. For Ulcerations, Saffron in Hydromel, and a Decoction of Liquorice, are proper Medicines. In the State of the Disease, there is nothing better than to wash the Mouth with the Juice of Ptisan or Aliea, which frees the Patient from many Inconveniencies, and prevents an Abscess.

A Fomentation for the Quinsy, to be received at the Mouth, is as follows:

Take Origanum, Hyssop, Savory, and Fennel-seed, with a good Quantity of Vinegar and Nitre; beat them in a Pot, that is carefully stopped, with only a Hole in the Middle of the Cover, to which, and the Patient's Mouth, must be fitted a hollow Cane, through which the Vapour may be transmitted. If the Cane grow too hot for the Lips, let the Patient hold in his Mouth an empty Egg, perforated at both Extremities, for the Cane to pass into. The Fomentation will be the milder, if instead of Vinegar you put Posca or Water. Sometimes sharper and more severe Remedies are required to make the Flesh rise, and to remove the inward and deeply-seated Streightness and Compression, under which the Patient labours; for the Disease often grows so desperate, that it has been thought necessary to use things odious and abominable, such as human Dung, which, it is certain, has been prescribed for a Litus, with the desired Success; some use it fresh, others dry'd and powder'd, mixing it with Nard or Myrrh, to take off the Stench.

From acrimonious and lacerating Medicines, we are to pass to those of a milder Nature, such as *Andron's* Troches, and the like. Emetics are beneficial, especially to those who have a Sense of Weight about the Belly. *Archigenes's* Remedy, which I use for an inward Quinsy, and is admirable also in an Asthma, consists of

Four or five Grains of Elaterium, twenty-seven Grains of Spuma Nitri, and a Dram of Mustard-seed; bruise them, and make them up in Water.

Elaterium bruised with Oil or Honey, and rubbed upon the Parts as deep as it will go, excites Vomiting, and much more effectually, if it be mixed with Spuma Nitri. The same Effect has burnt Copper, bruised with Oil of *Cyperus*, anointed upon the Parts. Ox-gall, so used, is very good for the same Purpose, and so is Nitre drank in Oxymel, the Juice of Centaury with Honey, and Millipedes made into a Lintus with Honey. Some have given a Spoonful of the bruised Seed of Nasturtium in Hydromel, and soon after the Patients have vomited up a thick and tenacious sort of Phlegm, by which they have been greatly relieved.

Take a good Quantity of the Dung of a Cock, that is of the Colour of Ceruls, dry it, and keep it, and when a Case requires, give a Spoonful of it diluted in Water or Hydromel. It cures those who are given over; but if the

Patient cannot drink it, the Parts are to be rubbed with it as deep as you can make it go: Or,

Take Centaury, Nitre, common Salt, of each eight Drams; bruise them, and lay them aside dry; when Occasion calls, mix them with Honey, and lay it on with a Feather, or as you think fit: You may confide in the Use of it; for it is an approved Medicine: Or, bruise Wormwood, and, straining the Juice, add to it some bruised Nitre, and make it into a Litus with Honey: Or, make a Litus of Elaterium, Ox-gall, and Honey.

The *Diabefasa*, in the Beginning of the Distemper, is to be taken in a moderately astringent Decoction, such as those we have prescribed: When the Disease is arrived near its Height, give it in Juice of Ptisan; in its Remission or Decline, it must be taken in Honey, Hydromel, or Mulsum; and for an inveterate, and in a manner hardened Inflammation, it is given in Oxymel.

*Philagrius* advises us after the aforesaid Evacuations of the whole Body, Cupping, and opening the Veins under the Tongue, to mix other things with the Diabefasa, partly such as will restrain the Influx of the Matter, and partly such as will discuss what is settled in the Parts: For Example;

Take of Diabefasa, Galls, called *Omphacitides*, White Dog's-dung, human Dung dry'd, each eight Drams; but the Dogs must be fed with nothing but Bones for two Days before.

*Marcian's* Emetic for inward and outward Quinsys. "Demand your Reward, says he, before you give it" [in Confidence of a Cure].

Take burnt Copper, Vitriol, each twelve Drams; Myrrh, Elaterium, Spuma Nitri, each one Dram; Ox-gall, four Drams. Make them up with Honey, and with a Feather anoint the Parts affected as far as you can reach.

*Archigenes* advises to take human Dung, qualify'd as before, and dry it, then burn it in an old Rag, and afterwards give it to be drank in Hydromel; it cures those that are at the Point of Suffocation.

*Antonius Musa* prescribes dry'd Dog's-dung, such as aforesaid, bruised and sifted, to be mixed with Honey, and anointed on the Parts so deeply, as that it may be swallowed: "For, says *Galen*, I know no better Remedy for the Quinsy, or great Inflammations of the Tonsils, or dangerous Suffocations from the Glandules and Tubercles of the Throat." The same is very effectual, when mixed with Oxymel and Tar, and the Parts anointed therewith.

An excellent Remedy for the Quinsy is prepared of burnt Swallows, in manner following:

Take of burnt Swallows, eight Drams; Saffron, two Drams; Spikenard, a Dram; make them up with Honey, and use it while the Distemper is strong upon the Patient. The Swallows are thus burnt: Take the young Swallows after they are feathered, and put them alive into an earthen Pot with a convenient Quantity of Salt, and, stopping the Pot close, heap burning Coals upon it, till its Contents are reduced to Powder and Ashes, which levigate, and so use it.

Another Preparation of Swallows for the Quinsy:

Take young Swallows burnt, in Number eleven; Juice of green Myrtle, a Pint and an half; Myrtle, twenty-seven Grains; Honey, a quarter of a Pint. Burn the young Swallows, and pulverize them, and then mix the other Ingredients.

A Medicine, whose Efficacy is proved by Experience.

Take of Malabathrum, Costus, Cloves, Pepper, each an Ounce; Sandarach, four Ounces; mix them with clarified Honey for a Litus: Or,

Take Snails which have no Shells, such as are found in Gardens, and burn them in a Pot to Ashes, which mix with Honey, and so use them; it gives present Relief.

In like manner the Ashes of burnt Crabs are to be used with Honey, and the Decoction of Crabs is good to wash the Mouth. I use to bruise a Crab in half a Pint of Water, and, straining off the Liquor, give it warm for a Gargle: It draws off abundance of gross Humours, by which the Patient finds immediate Relief.

Dry the Lesser Centaury, then burn it, and, with the Ashes mixed with Honey, make a Litus: Or,

Take



Take of the burnt Jaw-bone of a young Hog, an Ounce ; of Album Græcum, four Drams ; Rind of Pomgranates, Galls, each an Ounce ; Costus, four Drams ; Pepper roasted, six Scruples : Mix them with Honey.

By way of Caution, we ought to be very solicitous and careful, when the Disease seems to remit, that the Matter, which was attracted from the innermost Parts of the Body to the Fauces, does not, by an unexpected Metastasis, fall down upon the Lungs, and suddenly carry off the Patient. *Actius, Tetrab. 2. Serm. 4. Cap. 47.*

From TRALLIAN.

The most antient Physicians usually called every Kind of Inflammation about the Throat, whether inward or outward, a *Synanche* ; but their Successors have distinguish'd this Inflammation into four Kinds : Thus an internal Inflammation of the Muscles of the upper Part they named *Cynanche*, an external one *Paracynanche* ; in like manner they called an internal Inflammation of the Pharynx, or Fauces, a *Synanche* ; and an external Inflammation of the same Sort *Parasynanche*. [To these Species *P. Egineta* adds a fifth, which, tho' rarely, affects Children, and is owing to a Luxation of the Vertebrae of the Neck ; this, he says, is incurable, *Lib. 3. Cap. 27.*]

This Distinction being thus established, we are next to direct to a proper Cure for each of these Kinds. In general then we ought to know, that neither repellent nor discutient Remedies are to be used alone, but in Conjunction ; and, that with regard to Time, sometimes Repellents, at other times Discutients, are to be prescribed. In the Beginning of the Disorder, and while the Matter seems to be in a Flux, Repellents are to be chosen ; in the State of the Disease, Discutients are generally proper ; and in its Decline, stronger Discutives. They who use only a relaxing Method, either inwardly or outwardly, do a great deal of Mischief, by inducing a very acute Suffocation, or increasing the Inflammation, to the utmost Danger of the Patient. And we are not only to consider the Times, but the Nature of the Remedies. For tender and delicate Constitutions, such as Eunuchs, Boys, and Women, mild and gentle Remedies are most convenient ; but to hardy and robust Bodies, stronger and rougher Medicines are best adapted. For as strong and hardy Complexions in Health can bear Refrigerants without being sick, so, when disorder'd, they require more powerful Remedies to restore them to their natural State ; but Persons of a softer Habit experience the contrary, for they bear well enough with weak and gentle, but are hurt by strong Medicines. Wherefore we must carefully weigh with ourselves, and consider when it may be proper to increase or remit the Force of any Medicine, so as that it may be contrary to the Disease, but at the same time familiar and friendly to the Patient. We shall begin then with the most simple and weak Remedies, and proceed to the stronger, and direct when they are to be used in their pure or simple State, and when mixed.

One of the most simple Medicines in this Case is prepared of Honey, and the Juice of Mulberries, and is good in the Beginning, or for any moderate Degree, of all inflammatory Disorders of the Tonsils, Uvula, Fauces, or any of the Parts about the Throat, especially in Bodies of a soft and white Flesh. This Medicine, which we call *Diamoron*, when compounded, is good, not only in the Beginning, but in the State of the Inflammation. It is render'd a more powerful Discussive, by being mixed with Myrrh, as most indeed prepare it in the Beginning of the Distemper ; but it would be better suited to its State, which requires both Digestives and Discutives ; and if at this Time you add a little of the Antidote called *Diabesafa*, the Remedy will be much more effectual.

When the Heat of the Inflammation is asswaged, but a sort of Hardness remains, it will be proper to add a little Sulphur and Nitre ; and if there be any thing of a gross and viscous Substance deeply seated, six Drams of Nitre, and one of Sulphur, will be sufficient. But if the Patient cannot bear so penetrating a Medicine, but labours under an Imbecillity of Stomach, which he thinks is subverted by this Topic, the Nitre and Sulphur must be left out, and we must be contented with the Addition only of the *Diabesafa*, or Penroyal, and Origanum, or Calamint, or Hyssop, or Pepper ; but to preserve the Fauces from being exasperated, there must be a Mixture of the Juice of Liquorice, which will render the Medicine in all respects innocent, and not the less effectual.

The Composition of the *Diamoron* for the Quinsy is as follows :

Take of the Juice of Mulberries, three Pints ; of Myrrh, Alum, Omphacium, each two Drams ; of Honey, half a Pound : Boil the Juice of the Mulberries for an Hour, and then let it cool, and thicken by Degrees ; after this add the Honey to it, and boil them again to the Consumption of Two-thirds ; and when they are cool, mix with them the dry Ingredients

The incomparable *Galen* prepared this Medicine after the following manner :

Take of Honey, a Pound ; of the Juice of Mulberries, two Pints and an half ; of Saffron, Myrrh, Omphacium, each a Dram ; of austere Wine, two Pints and an half. If Omphacium cannot be had, substitute in its room the Juice of Sumach. Let this be first boiled to a strigentious Consistence, and then add the Honey ; after they have boiled for some time together, remove the Vessel off the Fire ; and, putting in the dry Ingredients, boil them well together, till they are thoroughly incorporated.

The prepared Juice of the wild Mulberries is an excellent Medicine, and so is the Juice of Quinces ; and, for want of these, the Juice of wild Pears, Medlars, Damask Prunes, Services, and wild Plums. These astringent Fruits plainly require to be mixed with a good Quantity of Honey, sometimes double, sometimes triple their Weight ; and all these Medicines are friendly to the Stomach, and not at all dangerous, and may properly be taken in a moderate Degree of Inflammation. These Juices may be prepared with the same Ingredients as the Juice of the Mulberries.

The Medicine prepared of the Juice of Walnuts is somewhat more effectual, as well as what is prepared of Blackberries, Pomgranates, and Quinces, which is a Strengthener and Stomachic.

The Medicine of Walnuts, called *Diacaryon*, is thus prepared :

Take the external Rind of Walnuts, while they are in their most flourishing State, and pound it in a Mortar ; strain the Juice through a linen Cloth, and after boiling it, mix it with a moderate Quantity of Honey, as before in the *Diamoron*, and boil it again to the Consistence of Honey. In this State, without any further Mixture, it is proper for Women and Children to take, especially in the Beginning of the Distemper ; if you add Myrrh, it may be used when the Disease is arriv'd at its Height ; and with a further Addition of Sulphur and Nitre, in the Decline of the same, and where the *Aspera Arteria*, and its Top, are affected with a Hardness and Constriction, as we said before.

Another excellent and very effectual Medicine, which has saved many Lives, is thus prepared :

Take of Orris, Balaustines, Pepper, Saffron, each an Ounce ; Syrian Sumach, two Ounces ; Wine, three Pints ; Must, boiled to the Consumption of a third Part, a Pint ; Honey, a Pound ; Alum, an Ounce. This Remedy may be used at any time, especially where Heating and Attenuation of some stubborn Hardness are required.

The Preparation of the *Diabesafa*, for malignant and desperate Inflammations : It is called also *Diabarmala*, from *Harmala*, wild Rue :

Take of Anise, Seeds of Smallage, Bishop's-weed, the Flowers of common Rushes, Alum, Illyrian Orris, wild Rue, each one Ounce ; of Cassia, Crocomagma, [Dregs of the expressed Ointment of Saffron] dry'd Roses, each two Ounces ; Ivy, fresh Ashes of young Swallows burnt, each three Ounces ; Spikenard, Amomum, each four Ounces ; Saffron, an Ounce and an half ; of the Galls called Omphacitides, [the small, tuberos, solid sort of Galls, *Dioscorides, L. 1. C. 146.*] eight in Number : Pulverize them, and make them up with Honey.

*Actius* ascribes this Composition to *Andromachus*, and quotes him, as saying, that he used it in desperate Quinsies, and that it was also an excellent Remedy for Pains of the Stomach, and the Gripping of the Guts. His Receipt is somewhat different from *Trallian's*, and here follows :

Take Seeds of Anise, Seeds of Smallage, Flowers of the *Juncus Odoratus*, Bishop's-weed, plumeous Alum, Illyrian Orris, the Seeds of wild Rue, Cinnamon, Troglodytic Myrrh, long Birthwort, Cassia, Crocomagma, dry'd Roses, of each one Ounce ; Costus, Ashes of Swallows newly burnt, each three Ounces ; Saffron, an Ounce and an half ; Spikenard, Amomum, each four Drams ; Galls called Omphacitides, eight in Number : Make them up with Honey. The Dose is the Quantity of a Bean. *Actius, Tetr. 2. Serm. 4. Cap. 47.*

This Medicine may be used alone, if the Distemper be moderate ; and its Strength may be abated, by mixing with it Amylum, or dry'd Roses, or Earth of Creta or Lemnos, or Baileys-



Barley-meal, or any other thing of that Nature, according to Discretion. If a more powerful Remedy be required, its Strength may be increased by an Addition of Nitre, Elaterium, (so they call the Juice of the wild Cowcumber) and Swallow's Dung, burnt or not burnt. The Medicine may also be improved by a Mixture of the Excrements of Dogs, and much more by an Addition of human Ordure, burnt or not burnt; but the burnt is the weakest. But Regard is to be had to the Time when we make these Additions: Thus, for Instance, we mix Sal Ammoniac, when not only Repellents, but Discutients, are required; and if we add the Root of Bryony, we shall make it a far more powerfully discussive Medicine; for Remedies of this Nature are manifestly wanted, where there is no Influx of Humours, but the Inflammation is hard and scirrhus. Many have mixed Mustard-seed, prepared as they continually eat it for Sauce, with Oxymel, and so give it warm for a Gargle; and then afterwards, by anointing the Parts with Diabesafa, have discussed a scirrhus Inflammation in a surprising manner. For in every Conflux of Humours we must restrain their Course; but when they are settled on a Part, we are to use Discussives, for fear the Passage of the Breath should be obstructed, and so the Patient be strangled as with a Cord.

You may anoint the Parts to very good Purpose, if to the Diabesafa you add but three things, which have saved many without the Help of Bleeding and Purging, and they are Dogs and human Excrements, and Elaterium; but if some abominable human Excrements, the other two will suffice, for they do well with Honey; and where Inunction cannot be performed, may be blown through a Quill, with the same Effect, on the Part. That the Dung may not have a foetid Smell, the Dogs are to feed on nothing but Bones for three Days before. To correct the Factor of the human Ordure, let a Boy eat nothing but boiled Lupines, for three Days before, that his Stools may be well concocted and coherent; these Lupines are usually eaten in small Quantities, with well-baked Bread [*καλαρίτης ἄγρος*]. The Boy's two first Stools are to be thrown away, and the third preserved; and after 'tis dry'd, to be mixed with Honey. For the Use of this we have the Authority of the very wise *Galen*, and *Philagrius*, and many others of the Antients, corroborated by our own Experience. But the Moderns reject human Excrements as an Abomination, and only make use of those of Dogs, as having nothing of a foetid Smell, and yet are effectual to the same Purpose. But if any be averse also to the Use of this, they may keep to the Lituses prepared of the Swallows, [*Diachelidonium*, the Preparation of which see from *Aetius*] and what has Sumach for an Ingredient, which are admirable Remedies; the former of these may be mixed with the Preparation of the Juice of Walnuts. Observe, that the Diabesafa is not only good in Affections of the Throat, but in many others; for it cures Disorders of the Stomach and Colon, and is an excellent Stomachic and Anti-dysenteric, when mixed with Album Græcum, or Dog's Dung, which itself cures the Dysentery, if it be mixed with Milk in which heated Sea-pebbles have been quenched; and is no less effectual in Inflammations of the Fauces, Tonsils, and Uvula, if used with the Juices of austere Grapes, the Rind of Walnuts, Cornelian Cherries, Acorns of the Ilex, or Services; it is also properly mixed with *Ægyptia* and *Anthera*. In the Beginning and Increase of Inflammations Astringents are plainly indicated; but when they are come to their full State, and ought to be dissipated, Discutients are required. Dog's Dung has also many other Virtues; for it cures the Aphthæ, and old Ulcers which are hard to cicatrize.

If the aforesaid Remedies are not to be had, we must make use of such as follow, which are both good and easy to be prepared:

Take the Seed of Radish, pulverized in Oxymel, for a Gargle: It has a very good Effect by generating Plenty of Humidity.

Another Gargle for the Quinsy, which I use, as did my Father *Stephen* before me, is thus prepared:

Take of *Egyptian Thorn*, a Dram; *Orris*, and *Liquorice*, each half a Dram; Bran of Bread-corn, an Handful; dry'd *Roses*, a small Quantity; *Dates*, five or seven: Boil them in Wine boil'd to a Consumption of a Third, or Water, and let the Patient take the Decoction, with a very little Honey, for a Gargle, to be renew'd every Hour.

A very good Medicine in the State of the Distemper, is the following:

Take of burnt and washed Brass, a Dram; of red Nitre, two Drams: Give them a moderate Boiling in Honey, in a copper Vessel, and so use them. Wormwood also, and Honey, give great Relief in this Case.

Another for inveterate Quinsies, that are void of Ulcerations:

†

Take of Euphorbium, two Drams; of Honey, a Quarter of a Pint: Boil the Honey well, and add the Euphorbium: Make them into Pills, and give two of them in the White of an Egg. They gently loosen the Belly, and prevent a Suffocation. This is a very effectual Medicine against Inflammations, proceeding from gross and viscous Humours, which are not attended with Ulcerations.

As to Bleeding in the Quinsy, it ought to be used in the first place, but not all at once; for particular Evacuations are fittest to draw off the Cause of the Disease from the affected Part; therefore Phlebotomy is to be administer'd three or four times, only taking care to stop the Blood before the Patient faints; for nothing is more improper and dangerous in a Quinsy than Fainting, which is often the Cause of a Confluence of all the Humours inwards. If there be no Relaxation after Bleeding, but the Passages of Food and Air [of the Gullet and *Aspera Arteria*] are still obstructed, we are not to scruple cutting the sublingual Veins, nor defer it till To-morrow, but do it the same Day. I myself, in a very urgent Case, have opened a Vein very early in the Morning, cut the Sublinguals at Day-break, and in the Evening administer'd a Purge of Scammony in Cremor of Ptisan, and with all these Means had much Difficulty to relax the Strangulation which the Inflammation had caused. To another, after opening the Vein of the Cubit in both Arms, I administer'd the same Day ten Grains of the newly expressed Juice of Spurge, while it was yet in its liquid State, and before Insipissation. This is the Method to be used with Persons who are of a robust Habit, in the Vigour of their Age, and vehemently affected with the Distemper, which gives no Respite, but requires immediate Help. I have also cut the Jugular Veins when I could not find the Sublinguals, and by that means very much relieved the Patient. For a Woman I have open'd the Veins at the Ankles, when I understood she wanted her monthly Purgations, which was the Occasion of the Disease. Hence she received a double Benefit, the Restoration of the Menses to their usual Course, and Relief from the Distemper. The same is to be done for Men, if subject to the Hæmorrhoids.

Cupping is advisable in these Disorders, but it must be used after the Influx of the Matter has ceased; for while it flows to the Part, Restrictants and Repellents are more proper than Drawers. But when the Influx is over, and the Matter wants to be discussed, Cupping and Fomentations are convenient, and if needful, a Cataplasim is to be apply'd; for when the whole Body is free from Recrements of ill Humours, there is no Fear of a new Conflux to the affected Parts; and it is certain, that Cupping-glasses have the Virtue of attracting the peccant Matter, which is the sole Cause of the Danger, from the inner Parts to the Superficies.

Externally may be apply'd Wool moisten'd with Oil, or mollifying Cerates, prepared with Wax, Butter, and the Fat of a Goose.

Cataplasims are to be such as digest and discuss Inflammations, prepared, for Example, of Barley-meal, Linseed, and Dates, boiled in Water; or Saffron and Crums of Bread boiled together. But Cataplasims which only relax, or strongly repel, are to be avoided. If the Inflammation be of pretty long standing, and hard, it will be proper to add dry'd Figs, Docks, Fats, and a little Nitre; for the Matter ought to be drawn out, and Nature assisted in her Endeavours that way.

Old and scirrhus Inflammations are proper to be fomented with a warm Decoction of Chamomile or Marsh-mallows, to which if you add Bays, especially in cold and stubborn Humours, which are deeply seated, the Fomentation will be much more effectual.

As to Diet, let the Patient's only Sustainance at first be Hydromel, which of itself produces all the good Effects that can be desired; for it attenuates and purges both by Stool and Urine. It is, in a particular manner, proper to be given in a Defluxion upon the Breast or Lungs, or where those Parts are oppressed with a Straightness; and there is Reason to fear, lest an Inflammation, Peripneumony, and in some measure another Cynanche should arise. Give Hydromel till the Inflammation be moderated, and Respiration more free. After the third Day, the Patient is to take Cremor of Ptisan, which is no less effectual to all good Purposes than the former; for it absterges, incides, nourishes, and has a Virtue of allwaging the Heat of an Inflammation. When the inflammatory Matter is attenuated, and the Heat moderated, the Sick is to be indulg'd with some very soft Yolks of Eggs, but not many; for the narrow Passages are soon streighten'd with copious Aliment, and are in Danger of a new Strangulation. In this Disorder we are by all means to avoid an Inflammation, which is sooner caused by a free than a sparing Diet. *Trallian, Lib. 4.*

Of those which are strangled in this Distemper, we give over all Hopes, when the Froth appears about their Mouths, relying upon the Opinion of *Hippocrates*. Others are recalled to Life by instilling Vinegar and Pepper, or the Seed of Nettles bruised in very strong Vinegar; but as they will not receive them without much Difficulty, they must be compelled. When the

the



the Redness about the Neck is dispell'd; they immediately look up, and are relax'd. The same Means are to be used for those who are shipwreck'd; and, in short, for all who are under Suffocation, to revive the natural Heat. *P. Æginct. Lib. 3. Cap. 27.*

The Method of treating this Disease varies according to its different Species, and the Causes of each; to the Knowledge of which, in order to their Removal, the Physician is to direct all his Intentions. As soon therefore as it is known by manifest Signs, that there is a Congestion of the Blood in the Head, which does not only increase the Inflammation, but is also the Cause of fatal Symptoms, the Physician's first and immediate Care is to divert the Impetus of the Blood from the Part affected, which is most conveniently done by opening a Vein near it; for, in this Remedy, Physicians of all Ages, both antient and modern, have placed their principal and almost only Hope of relieving the Patient. Let *Hippocrates* speak for all, who, in his Book *de Loc. in Hom. Sect. 1.* thus directs the Cure of a Quinsy: "They who are affected with a Quinsy from Blood collected and coagulated in the Veins of the Neck, are to be bled in the Arms and Feet; and at the same time to be evacuated by Stool, in order to divert and draw off what feeds the Disease." But where, and after what manner, this is to be done, all are not agreed. There are a great many who advise opening of the Veins under the Tongue; which others reject, because if the Orifice be not made wide enough, but little Blood comes out; from a wide Orifice proceeds an Hæmorrhage, which is sometimes known to prove fatal. Among those who despise it, *Tulpius* is one of the chief, and for this Reason, because the Blood is hereby drawn to a Place narrow of itself, and a Suffocation easily induced. Others, as *Zacutus Lusitanus*, *Hist. Med. princ. Lib. 1. Hist. 76.* *Joh. Steph. in Hipp. de Struēt. Hom. Trallianus*, and *Freind* in his Commentaries on the Epidemics of *Hippocrates*, are extremely zealous for opening the external Jugular Veins; especially in a desperate Disease, and where there is present Danger of Suffocation. Some commend Scarification on the Nape of the Neck, and the Chin, as *Platerus*, *Amatus Lusitanus*, *Zacutus Lusitanus*. *Riolanus* would have it done about the Larynx. *Capivaccius* and *Hollerius* are for applying Leeches behind the Ears, and on the Neck.

After Phlebotomy, according to the Advice of *Hippocrates*, the Belly is to be purg'd, by which means the Humours may be attracted to the lower Parts, and evacuated: And this is to be effected by Catharries, not at all acrimonious, or in the Form of Powders or Pills, but of the milder Kind, and in a liquid Form: But that we may answer two Intentions at once, that is, draw off the superfluous, and at the same time attemper and sweeten the acrid and salt Humour, it will be very proper to prescribe a Decoction of two Ounces of Manna, and a Dram and half of antimoniated Nitre, in ten Ounces of Whey. If nothing can be received by the Mouth, a Clyster must be given, made of Milk, Honey, Oil of sweet Almonds, common Salt, and Nitre.

The superfluous Blood, and impure Humours, being thus evacuated, we are next to direct our Endeavours to the Resolving of the sanguineous or serous Humour that stuffs the Vessels, by proper Remedies, both internal and external, which may at the same time allay the feverish Heat. Most conducive to this Purpose, is the frequent Use of a diaphoretic and gently anodyne Mixture of antispasmodic and perspirative Waters of the Flowers of Elder, the Lime-tree, Cowslips, Acacia, Goat's-rue, of the Herb *Carduus Benedictus*, Scordium, [Water Germander] with *Dioscordium*, diaphoretic Antimony, and Sal Prunellæ, Vinegar also, with Crabs-eyes, and the Syrup of the red Poppy. Very proper also are moistening and diluting Drinks, indulged in good Quantities, such as Whey, sweet and fourish, and prepar'd with the Juice of Lemon and Sugar, Pilsan of Barley cleansed, the Root of Scorzonera, and the Shavings of Hartshorn, with the Syrup of Lemon-juice, Water-gruel, and Milk itself, if mix'd with an equal Quantity of Water, and some Sugar, and a little Nitre.

In so dangerous a Distemper as the Quinsy, we are also to relieve the Patient, as much as possible, by Topics, applying some to the Inside of the Mouth, others externally to the Neck and Throat, that, by these means, the Pain and inflammatory Heat may be mitigated, the Acrimony of the Humours attemper'd, and the Juices, which stick fast in the narrow Passages of the Vessels, may be dissolved. The most common Topics are, Cataplasms of paregoric and discutient Ingredients, as the Flowers of Elder, Melilot, common Chamomile, Mullein, the Roots of white Lillies, Figs, Saffron, the Seeds of Anise and Fennel; the Meal of Lin-seed, boil'd in Milk; to which some add, as Specifics, Swallows Nests and *Album Græcum*. Useful also for this Purpose are lenient and emollient Plaisters, as *Dia-chylon Simplex*, or a Plaister of Melilot, mollify'd with Oil of sweet Almonds; or render'd more efficacious by a Mixture of *Sperma Ceti*, Saffron, and Camphire. I am not fond of advising Gargarisms, or syringing the Places where the great Pain, with the burning Heat and Dryness, lies. It is sufficient, now-

and-then, to wash the Mouth with some proper warm Liquor, which may be prepared of several things, as with Rob *Dianicum*, Diamoron, Syrup of the sweet Juice of Pomgranates, of red Poppies, of Violets; Mucilage of Quince-seeds, Cream; Sal Prunellæ; any of which, as Circumstances shall require, may be mix'd with Milk, a Decoction of Liquorice, or of Figs, or with Water-gruel: Nor is there less Virtue in the fresh Oil of sweet Almonds, mix'd with *Sperma Ceti*, Saffron, and Syrup of Violets, infused in Water-gruel, and held a while in the Mouth.

#### CLINICAL CAUTIONS and OBSERVATIONS.

In a sanguine Quinsy, and plethoric Body, the Cure must begin with Bleeding, which in this, if in any Distemper, delivers from immediate Danger of Death; but we must be quick with our Assistance, for we have not a Moment to spare. The Patient finds most Relief by opening the Jugular Veins; but if this be impracticable, the Veins under the Tongue must be cut, taking care first to open a Vein in the Arm. When a sanguine Quinsy comes upon a burning and *Hungarian* Fever, and there is Danger of a Phrensy, but not Strength enough to bear the Loss of much Blood, the sublingual Veins are however to be open'd with all Speed: But when the Disorder owes its Rise to a caustic Acrimony, inherent in the nervous Membranes of the Fauces and Larynx, and there is no manifest Redundancy of Blood, Scarification of the hinder Part of the Neck or Chin, or Application of Leeches, are rather indicated. And in cacochymical and phlegmatical Constitutions, when, from the Plenty of viscid Serum, a Tumour, with a Pain and a gentle Inflammation, affects the Fauces, and the external Parts of the Neck, Scarification on the Nape of the Neck, and the Scapulae, is to be prefer'd before Phlebotomy.

In the Use of Topics, due regard is to be had to the different Kinds of Inflammations in the Fauces, and proper Remedies are to be accommodated to each Kind. Thus, in every painful and hot Inflammation of the Fauces, a Julep of Roses, with Nitre and a little Camphire, swallow'd, is of excellent Service. Also Jelly of Hartshorn, with the White of an Egg, well depurated, and the Juice of China Oranges, and sweeten'd with Sugar, repeated frequently, are of wonderful Relief. If the Fauces are dry, and parch'd with Heat, the Tongue swell'd, and there is a Difficulty of Respiration, as well as Deglutition, a Linctus is to be prepar'd, with two Ounces of the White of an Egg, beaten in Water, one Ounce of Rose-water, Syrup of Pomgranates, and Diamoron, of each half an Ounce, and Sal Prunellæ, twelve Grains; with these, according to the Condition of Circumstances, twenty or thirty Drops of some anodyne Liquor may be mix'd: Outwardly the Neck, before and behind, is to be anointed with camphorated Oil, prepar'd of one Ounce of the Oil of sweet Almonds, two Drams of the Oil of white Poppy, and half a Dram of Camphire.

In the internal and occult Quinsy, attended with a violent Heat, the Mouth is, now-and-then, to be wash'd with Milk only; and its Cream, with an Addition of Sal Prunellæ, and Syrup of red Poppy, and Whey, is to be frequently drank. In an Inflammation of the Oesophagus, which is often accessory to a malignant Fever, when come to its State, what is commonly used is a Powder made of a Dram of Nitre, three Grains of Camphire, and an Ounce of Sugar, together with an Emulsion of sweet Almonds, to be both taken inwardly, and outwardly to be held for some time in the Mouth. And when there is any Danger of Suffocation, from receiving inwardly the acrimonious Exhalations of Metals, Minerals, Quick-lime, and Mercury, there is no room for Bleeding or Purgings in such a Case; but the fittest Remedies are Moisteners and Demulcents, both internal and external, as Milk and Nitre, the Cataplasms before-mention'd, and Clysters.

The inflammatory Pain, caused by the salt acrimonious Serum, in the glandulous Flesh of the Fauces, near the Precincts of the Pharynx and Larynx, with a Redness and copious Salivation, without a Fever, is best discuss'd in the Beginning, by immediately taking a Gargarism of Spirit of *Rhenish* or *Frankonian* Wine. The present Effects of this Remedy are attested by *Waleus*, *Method. Med. p. 112.* "Let him who is affected with a Quinsy, says he, gargarize himself in the Beginning with Spirit of Wine, and all the Inflammation will cease in the Space of three Hours, whether he uses it by itself, or mix'd with other things." And, for this Reason, *Martianus* commends, in a true Cynanche, things which are actually hot: And I myself have known an Inflammation of the Fauces discuss'd in a short time, by gently passing down the Fauces eight or ten Drops of Spirit of Wine camphorated, in which a Grain of Nitre has been dissolved. Some recommend, for this Purpose, Essence of white Burnet, made with Spirit of Wine.

When a great Load of impure serous Humours oppresses the Glandules of the Palate and Fauces, the milder Laxatives are to be frequently used, such as those prepar'd with Manna, Rhubarb, Tartar, and Raisins of the Sun, and Currans. There is also an excellent Gargarism for this Purpose, which has for its Basis the Sal Pharyngeum, described by *Zobellus* in his *Tartarologia*:



*logia*: It is prepared of an Ounce of Cremor of Tartar and Nitre, with half an Ounce of burnt Alum, dissolved in distill'd Vinegar; and this Solution is afterwards to be coagulated according to Art. A Dram of the Salt thus prepar'd, with two Drams of Honey, is to be dissolved in five Ounces of Plantain-water; and with this Liquor the Fauces are to be often wash'd, and the same is to be now-and-then injected with a Syringe.

In inflammatory Tumors of the Fauces and Glandules, the mollifying Plaisters above prescrib'd have justly the Preference before Cataplasms, which, on account of several Difficulties, I seldom use; but more frequently make use of a Decoction of Emollients made in Milk, and kept in a Bladder. But as to the Use of Gargarisms, observe, that they are not to be injected with a Syringe; for the too vehement Attrition of the Parts by this Method would the more exasperate the Pain and Inflammation. It is therefore the better and safer way to wash out the Mouth, now-and-then, with the Liquor appointed for a Gargarism: But if even this, by reason of Weakness, cannot be effected, the Injection is to be forced in the most gentle manner, lest there should be an Irritation to vomit; the Head also is to be bent forward, and not backward, for fear the Liquor, by slipping wrong, should pass into the *Aspera Arteria*, and endanger Suffocation; and if there be a great Quantity of Mucus inherent in the Parts, the Injection is to be renew'd. Moreover, in all these Affections of the Fauces, it is best to abstain from speaking, because the frequent and strong Agitation of the Tongue exasperates the Disease.

If the Tumors of the Fauces tend to a Suppuration, the same may most commodiously be promoted by the Application of fat dry'd Figs: And when the inflammatory Tumor of the Tonsils is full of Ichor, I find no external Remedy better than Honey of Roses, mix'd with Spirit of Vitriol, and often applied with a Pledget; it lessens the Tumor, cleanses it, prevents any further Afflux, and dissolves the Phlegm already about the Parts. In the Aphthæ of Infants, which beset the Tongue, and are attended with Pain and Heat, there is nothing better to mitigate them, than, now-and-then, to anoint the Pustules with Cream, with a little Nitre. Sometimes it will be convenient, in order to discuss the Phlegm, and restrain the Afflux of the Humours, to apply white Vitriol dissolved in Rain-water, or, what is better, Rose-water, or Elder-flower-water.

That the Inflammation of the Fauces may not return, as it often happens, we must carefully avoid such things as we said before were dispos'd to induce it. Perspiration especially must be maintain'd, and 'tis good to defend the Head, Neck, and Shoulders, from all Refrigeration, that the Humours, and acrimonious Matter, which ought to pass off thro' the Pores, and be dispersed, may not be repell'd inwardly, and take up their Settlement in the soft Substance of the Fauces. Beware also of every thing, that may put the Juices in too great an Agitation, and especially of Vociferation, and high-straining the Voice, by which the Humours are attracted to the upper Parts. If the Body be plethoric, seasonable Bleeding must be administer'd; and if spontaneous Hemorrhages observe not their stated Times, or fail in other respects, they must be regulated, and reduced to Order. Nor is less Care to be taken to keep the Belly soluble, by taking now-and-then a gentle Purge, by which Impurities may be carry'd off, and their confluent Motion upwards may be intercepted.

#### HISTORIES of CASES.

##### CASE I.

A Woman, thirty Years old, choleric, and very subject to Rheums and Catarrhs, rose out of her Bed in Autumn, thinly cloath'd, and carelessly exposed herself to the cold Air. By this means she contracted a Hoarseness, with a burning Heat and Pain of the Throat, so that she could neither swallow nor speak without Difficulty; and her Pulse, especially in the Night, was quicker than it ought to be. Her Menses having ceased, she was first blooded in the Arm, and then had a Clyster administer'd, but received no Relief; as for Gargarisms, so great were her Pains, she could not bear them. Mean while, the Tumor of the Throat, both internal and external, extremely increas'd, and to such a Degree as to want but little of strangling the Patient; but it subsided a little on the fifth Day, and the Pain was mitigated. At this time was outwardly applied to the Neck a ripening Plaister of Melilot and Saffron, on which were laid warm Rags, and her Mouth was wash'd with a Decoction of Emollients. By these means the Tumor was brought to Maturation, and happily broke in the Night, unknown to the Patient; but the acrimonious Matter was certainly fallen down upon the Lungs, and seem'd to threaten Suffocation. To remedy this, was prescrib'd Hyssop-water, with Essence of Castor and Liquorice, with an Addition of some Drops of Spirit of Hartshorn, prepar'd with Amber; also an Infusion of the pectoral Herbs in hot Water, after the manner of Tea: Upon this a Sweat broke out over all her Body; and at the same time a tough, viscid Matter, six times at least in a Day, came off by Stool, not without griping Contractions of the Belly. But the Physician, being apprehensive, that this Diarrhœa might be hurt-

ful, consider'd how to suppress it; and for that End order'd an Electuary of Diascordium, Conserve of Roses, the Powder of the Hæmatites, and Nutmeg. The Looseness was immediately stopp'd, but was succeeded by Hickups, with a burning Heat in all the Region of the Œsophagus, a Spitting of viscid Matter, and a Decay of Strength. Under these Circumstances another Physician was consulted, who judged these Symptoms to proceed from the wrong and injudicious Suppression of the Flux of the Belly; wherefore he prescrib'd Pills of choice Myrrh, Diagrydium sulphurated, *Mercurius dulcis*, Saffron, Castor, and Salt of Amber, to be taken in a hot Vehicle. By these means the Hickups were not only cured, but the Excretion of serous Matter by Stool was recall'd, to the great Relief of the Patient, who afterwards by degrees recover'd her Health.

#### REFLECTION.

It is very remarkable in this Case, that the Inflammation of the Fauces had a Solution by the serous and pituitous Flux of the Belly; that the preposterous Restraining of this Flux occasion'd grievous Symptoms, which vanish'd at its Return: But very often, in inflammatory Affections of the Fauces, the Œsophagus and the Stomach itself are afflicted, so that they seem to labour under the same Distemper. Of the *Aphthæ* I have often observed, that they infect the Œsophagus and the Stomach, which appears from that burning Heat which runs through the Œsophagus, and reaches even to the Diaphragm. Under this Circumstance the Patient can by no means suffer any thing that is salt, acrid, or hot; but finds Relief from Barley-broth, Water-gruel, and Infusion of dried Turneps, after the Manner of Tea, with Milk; by which means the Heat, Dryness, Pain, and Anxiety about the Diaphragm, have been removed. On the other hand, I have known, that when the Stomach has been inflam'd in burning Fevers, by Poisons, or by some of the more acrimonious Cathartics, the Inflammation has been propagated to the Fauces, and the Muscles of the Larynx. Hence we may take it as an establish'd Truth, that in Affections of the Fauces and Mouth, especially if they are infected with a viscid and thick Phlegm, laxative Medicines afford present Relief.

##### CASE II.

A Man, sixty Years of Age, had been long afflicted with a Quartan; and after he was cured, became very subject to Catarrhs, and Weakness of the Stomach. After travelling in a rainy Night he fell into a Disorder of the Fauces, in such a manner, that he could swallow solid Food, but not Liquids, without much Straining, Anxiety, and a subsequent copious Excretion of Phlegm. Inwardly the Fauces appear'd somewhat red, but nothing of a Tumor could be seen outwardly. We judg'd therefore, that the Epiglottis, which, like a Lid, covers the Orifice of the *Aspera Arteria*, was embarrass'd and turgid with a mucous Serum, and by that means render'd incapable of exactly closing the subjected Orifice: Hence, in Deglutition, the Liquids slip'd into the *Aspera Arteria*, which was the Cause of the subsequent Anxieties. Upon this Account, I order'd, outwardly, an Application of Spirit of Wine camphorated; and inwardly, for the Mouth, a Collution of Water of Elder-flowers, mix'd with Spirit of Sal Ammoniac, and Essence of Saffron, to be used now-and-then; and my Pills to be taken every Day (*of Aloes with Balsamics*). By these Remedies the Disorder was happily removed in a few Days, and the Patient recover'd his Health.

#### REFLECTION.

The proper Symptom of a Quinsy is, a Difficulty of Deglutition, as well with respect to Solids as Liquids; for if a pretty large Tumor affects the Beginning of the Œsophagus, and contracts it, then Liquids, but not Solids, may be transmitted through it; but if the Tumor be seated in the Beginning of the Throat, which is cover'd by the Epiglottis, solid Substances, by compressing the tumid Epiglottis, find a Way to the Œsophagus; while Liquids, not pressing with the like Force as the others, slide through the gaping Space, by the Tumors, into the *Aspera Arteria*, and there occasion great Molestation.

##### CASE III.

A Woman was thought by the Physicians to be infected with the *Lues Venerea*, upon which Presumption they had order'd her to be salivated with Mercury: From that time, upon every slight Occasion, as from cold or foggy Air, a Fit of Anger, acrimonious Meats, Refrigeration of the Head, or some Irregularity in the Menses, she would be seiz'd with an exquisite Pain, and burning Heat, in the internal Parts of the Fauces, about the Larynx and Pharynx, with a Difficulty of Respiration, but without a Fever. Now it happen'd, that this Woman slept in a low Chamber newly built, and full of the Vapours of Lime; whence she was taken not only with a Pain in the Head, but a vehement Heat and Pain in the Fauces and Neck, with Restlessness, Streightness of Breath, Anxiety, and Tollings.



Tossings. Being call'd to attend her, I omitted Bleeding, because there was no Redundancy in the Vessels, and only order'd a Cataplasim to be applied to the Neck; prepar'd of Meal of Lin-seed, Flowers of Elder, Figs, Saffron, Oil of sweet Almonds, and Milk. I advis'd also a Clyster of Milk, Nitre; common Salt, Honey, and Oil. For Drink, I allow'd Milk, mix'd with half the Quantity of Barley-water, or Ptisan, with an Addition of a proper Quantity of Nitre, or Syrup of Violets: Of this she drank plentifully, and often held it in her Mouth. By these means the Disease in a short time was discuss'd. To prevent her frequent Relapses, I advis'd the Drinking of the *Spaw*, or the *Selteran Waters*, with Milk, for a Month or more; and every Day, in the Morning, either to gargarize the Fauces, or to wash them with the *Aqua Sclopetaria*, (*Eau d'Arquebuse*) or a Decoction of Plantain in Wine.

## R E F L E C T I O N.

A Quinsy is very speedily produced, when the fibrous, glandular, and tubular Compages of the Fauces, is weaken'd and deprived of its Tone, which is frequently done by a mercurial Salivation: For this Reason, those who have once or twice labour'd under a Quinsy, which has not been carried off by proper Means, and a due Regimen, very readily fall into the same Disorder again, by raising their Voice too high, Excess of Passion, or of Wine, or by drawing in a cold moist Air: But Relapses are most effectually prevented by a speedy and perfect Cure, which leaves the Parts free from all Taint.

## C A S E I V.

I knew an honest Man, upwards of fifty Years old, of a sanguine, melancholic, but robust Constitution, who had never any Blood taken from him, but enjoy'd an excellent State of Health; even tho' addicted to the drinking of hopped Ale, and spirituous Liquors: This Man, happening to be put into a violent Passion by his Wife, was seiz'd with an exquisite Pain in his Head, the Arteries of which became turgid, his Face red, and his Eyes stern; in fine, his Nights were pass'd without Sleep, and his Arteries beat so strong, that he complain'd of a painful Sensation, resembling the Beating of a Hammer, in his Head: Upon this, a Cataplasim made of the Crums of Bread, Bay and Juniper-berries, with Vinegar of Roses, was laid to his Head; and, by the Advice of an old Woman, the White of an Egg, beat up with Alum, was applied to his Forehead and Temples: The Patient, having used these things for some time, complain'd at last of an exquisite and pricking Pain of his Fauces, a Difficulty of Deglutition, and a Shortness of Breathing; his Tongue swell'd prodigiously, and became black: He thrust his parch'd Tongue out of his Mouth, and had an insatiable Craving after Drink; the Pulse in his Arm was quick and vehement. For removing these terrible Symptoms, the following Method was used with Success: He was blooded plentifully, and had a pretty sharp Clyster injected. A Cataplasim of Dog's Dung, Swallow-necks, Figs, roasted Onions, Elder-flowers, Chamomile, Melilot, Cummin-seed, Nitre, and Camphire, with Elder-flower-water and Wine, was applied warm to his Neck. He used internally a Mixture of Elder-flower and Rose-water, of each two Ounces; distill'd Vinegar, six Drams; of Crabs-eyes, one Dram; Nitre, half a Dram; Camphire, four Grains, dissolv'd in Oil of sweet Almonds, and a sufficient Quantity of Julep of Roses, given pretty often, in the Quantity of some Spoonfuls; and for his ordinary Drink, an Infusion of Male Speedwell, Elder-flowers, and Liquorice-root; by which means the Danger of Suffocation was happily carried off. Afterwards a laxative Preparation of solutive Syrup of Roses, Cream of Tartar, Diagrydium, and Rhubarb, was administer'd, which gave him a Stool each time. His Mouth also was frequently wash'd with Rain-water, in which a little Nitre and Vitriol had been dissolved, and to which as much Sugar was added as render'd it palatable: By these means this dangerous Disease was, in a short time, thoroughly carried off.

## R E F L E C T I O N.

The Origin of this terrible Disorder justly claims our greatest Attention; for it proceeded from a Congestion of Blood in the Head. The external Applications for that Disorder were Astringents; by these the Blood was driven inwards, and towards the Fauces themselves: Here the Blood, being collected in a great Quantity, ceased to flow, and brought on the Heat, and all the Train of other Symptoms; for that the White of an Egg, beat up with Alum, is a strong Repellent and Astringent, is plain from its Use in Disorders of the Eyes; and that, from a Constriction of the external Parts, the Conveyance to the internal is easy, is plain from the mutual Communication of the Vessels: But the Cure could not fail of Success, when the Stagnation was encounter'd by Bleeding, and by internal as well as external Discutients; for if Opportunity is ever speedily to be embraced, 'tis certainly in inflammatory Congestions, which, unless speedily removed, degenerate into a sphacelous and deadly Corruption. *Hoffman. Medicin. Rational. Systemat.*

## C A S E from HILDANUS.

Last Autumn Mr. *John Merulam*, a Clergyman of great Learning and Worth, was, for two Months successively, afflicted with a violent Dysentery; from which when he was almost recover'd, he was, during my Absence, seiz'd with a new and very terrible Disorder: For Nature being in him weaken'd, both by the Distemper itself, and his great Age, (for he was now past Sixty-six) could not drive those Pustules, which generally appear on the Lips towards the End of the Disease, so far; but threw them out about the Uvula and Root of the Tongue, with very considerable Pain and Inflammation: Whilst Matters stood thus, he took the Advice of a foolish Barber, who three or four times a Day blow'd Powder of Pepper and Saffron into his Throat and Fauces; upon which the Pain, Inflammation, and Fever, were augmented, and fainting Fits seiz'd him at certain Intervals. Then, in order to dispatch the Patient the more speedily and effectually; he gave him a Medicine which operated both by Vomit and Stool, and which, from its Effects, I conceived to be Antimony. I, being call'd, went to him with all imaginable Haste, but found him as if in the Agonies of Death; for he could scarce breathe, and his Inquietudes were very great. His Tongue also and Fauces were so swell'd, that he could neither breathe, nor swallow a little Broth without the greatest Pain, accompanied with involuntary and convulsive Agitations of his whole Body.

I cured him in the following manner: First, I order'd him to wash his Mouth and Fauces with Milk, just come from the Cow; he also wash'd his Mouth, now-and-then, with Barley, Rose, or Scabious Water, mix'd with Honey of Roses: He every Hour also took a little of the Oil of sweet Almonds. We also, three or four times a Day, and as often by Night, anointed his Throat, Neck, and Breast, with Oil of white Lillies and sweet Almonds, and applied warm greasy Wool to them. We also, by means of Clysters, drew downwards the Matter which the immoderate Pain had drawn to the affected Parts; and after treating him in this Matter for about the Space of thirty Hours, an Impostumation broke in his Fauces, from which he discharg'd a purulent Matter by his Mouth.

Upon this his Pain was immediately lessen'd, and he began to breathe more freely, and sup a little Broth: Then by washing his Mouth frequently with Barley-water, and sometimes taking a little Honey of Roses, and by using a proper Regimen, and restorative Medicines, he was at last, thro' the Blessing of God, restored to Health in a miraculous Manner, and beyond the Expectation of all that were acquainted with his Situation. And tho' he is now in the seventieth Year of his Age, he nevertheless enjoys a good State of Health, and discharges the several Offices of his Function with Applause to himself, and Advantage to the Church. *Hildanus, Cent. 3. Observat. 27.*

The Sentiments and Practice of our Countryman Dr. *Sydenham* must not be omitted; it must be observed, that his Practice corresponds pretty exactly with that of *Hippocrates*, and his Transcribers.

1. This Disease comes at any time of the Year, but especially between Spring and Summer: It principally attacks the Young and Sanguine, and also red-hair'd Persons. It begins (first) with a Chills and Shivering; (secondly) a Fever succeeds; and (thirdly) immediately after, a Pain and Inflammation of the Fauces, which, without speedy Relief, hinder Deglutition, and prevent Breathing thro' the Nose; whence Suffocation is endanger'd from the Inflammation and Tumor of the Uvula, Tonsillæ, and Larynx. This Disease is extremely dangerous, and sometimes kills the Patient in a few Hours; that is, when a large Quantity of the febrile Matter is thrown upon the above-mention'd Parts, and the approaching Tumult is not timely enough prevented by proper Remedies.

2. In order to the Cure, I immediately bleed plentifully in the Arm, and presently afterwards in the Veins under the Tongue; and then I order the inflamed Parts to be anointed with Honey of Roses, strongly acidulated with Spirit of Sulphur; and prescribe a Gargarism to be used, not in the common way, but to be held quietly in the Mouth till it grows warm, and then spit out; and this to be repeated between whiles. *The Prescription for this Gargarism is specify'd in the last Paragraph of the Article ALBUMEN, which see.*

I also order the following Emulsion, or the like, to be taken daily:

Take seven blanch'd sweet Almonds, the Seeds of Melons and Pumpions, of each half an Ounce; the Seeds of white Poppies, two Drams; beat them together in a marble Mortar; then pour on, by degrees, a Pint and half of Barley-water; mix them well, and, when strain'd, add two Drams of Rose-water, and half an Ounce of white Sugar: Let four Ounces be taken every fourth Hour.

*This would be much better with an Addition of Nitre.*

3. I bleed again in the Arm the next Morning, unless the Fever, and Difficulty of swallowing, be in some measure abated, in which Case I give a gentle Purge, much Experience having taught me, that this is highly necessary and useful after Bleeding.



ing. If the Fever, and other Symptoms, threaten Disturbance even after purging, which yet seldom happens, they are to be quieted by repeated Bleeding, and applying a large and strong Epispastic between the Shoulders. During the whole Course of the Disease, a cooling and emollient Clyster must be given every Morning, except on the purging Day.

4. I injoin a total Abstinence from Flesh, and Broths made thereof; allowing Barley-broth, Water-gruel, roasted Apples, and the like, for Diet; and Ptisan and small Beer for Drink. The Patient must likewise sit up some Hours every Day; for the Warmth of the Bed increases the Fever, and its Concomitants, which I endeavour to conquer by this Method. *Sydenham*.

#### OF BRONCHOTOMY.

As Bronchotomy is principally of Use in a Quinsey, I shall chuse to give a particular Account of the Operation in this Place, rather than under the proper Article.

*Paulus* is, according to *Dr. Freind*, the first Author who describes the Operation of Bronchotomy. Our best Surgeons, says he, have described this Operation; *Antyllus* particularly thus. We think this Practice useless, and not to be attempted, where all the Arteries and the Lungs are affected; but when the Inflammation lies principally about the Throat, the Chin, and the Tonsils, which cover the Top of the Wind-pipe, and the Artery is unaffected, this Experiment is very rational to prevent the Danger of Suffocation. When we proceed to perform it, we must cut thorough some Part of the Wind-pipe, below the Larynx about the third or fourth Ring; for to divide the whole would be dangerous. This Place is the most commodious, because it is not cover'd with any Flesh, and because it has no Vessels near it. Therefore bending the Head of the Patient backward, so that the Wind-pipe may come more forward to the View, we make a transverse Section between two of the Rings; so that in this Case, not the Cartilage, but the Membrane, which incloses and unites the Cartilages together, is divided. If the Operator be a little fearful, he may first divide the Skin, extended by a Hook; then proceeding to the Pipe, and separating the Vessels, if any are in the Way, he must make the Incision. Thus far *Antyllus*. *Paulus* adds, That he (*Antyllus*) thought upon this Way of cutting, by observing (when it was, I suppose, cut by chance) that the Air rush'd through it with great Violence, and that the Voice was interrupted. When the Danger of Suffocation is over, the Lips of the Wounds must be united by Suture, that is, by sewing the Skin, and not the Cartilage; then proper vulnerary Medicines are to be applied. If these do not agglutinate, an Incarnant must be used. The same Method must be pursued with those who cut their Throat, with a Design of murdering themselves.

*Heister* gives the following Account of this Operation. What he observes with respect to People just drown'd, is of Importance enough to deserve Regard, as it may possibly save the Lives of many, if properly practis'd.

The Words Bronchotomy, Laryngotomy, and Tracheotomy, are convertible Terms, and mean no more than an Incision of the Aspera Arteria, or what we commonly call the Throat; and, indeed, various are the Causes and Reasons which may render this Operation necessary; for, in the first Place, it becomes principally and indispensably so, when, in a Quinsey, the Fauces are so terribly inflamed, that the Patient is in imminent Danger of having his Respiration quite stopp'd, and a thorough Suffocation brought on. Secondly, It becomes necessary, when a Bean, a Prune, or Cherry-stone, a Pea, little Stone, or any other foreign and adventitious Substance, falls into the Aspera Arteria, and seems to threaten a Suffocation. Thirdly, The Aspera Arteria may also be open'd in such Persons as have been suffocated, in consequence of their having been immers'd in Water, or, as we express it, in newly drown'd People. For sometimes a Power of Breathing has been restored to People in this Situation, by opening the Aspera Arteria, and by that means giving the Air free Access to the Lungs (See *Dethardingii Dissert. de Methodo Subveniendi Submersis per Laryngotomiam*). I am sufficiently apprised, that a great many Physicians forbid making an Incision in the Aspera Arteria, and consequently condemn this Operation, because they think it productive of Death, and are therefore prompted by a foolish Zeal to brand their Fellow-physicians, who attempt an Operation so dangerous in their Eyes, with the odious Appellations of barbarous and inhuman. But the Gentlemen who are in this narrow and confin'd Way of Thinking, are highly mistaken. For, in this Operation, the small Incisions made in the Aspera Arteria are so far from killing the Patient, that they do not even produce that Effect, when made considerably large; and *Garengot* gives Examples of various Cures performed by this Operation: For this Reason we think ourselves justly authorized with *Casseri* (in *Traetat. de Vocis Auditufq; Organis*) to pronounce those Men unskillful, cowardly, and even cruel, who, in the Cases above-mentioned, foolishly neglecting this Operation, which is often safe in itself, and attended with the most speedy and salutary Effects, suffer the Pa-

tients to die, for want of this proper and seasonable Assistance. Instances of this Nature may be seen in *Nicolaus Pontanus Observat. Rarior. Analect.* and in *Casseri*.

Now when this Operation is to be performed, that Part of the Trachea seems most proper for making the Aperture in, which is situated betwixt its second and third cartilaginous *Annuli*, or Ringlets. The Incision may nevertheless be made a little lower, without any Danger. The Method of performing the Operation, especially when the Stone of any Fruit, a Bean, a large Pea, a small Stone, or any other such Substance, falling into the Aspera Arteria, and threatening a Suffocation, is to be extracted, is in this Manner: The Patient is first of all to be placed in a reclining Posture, either in Bed, or in some convenient Chair, and his Head is to be held firm by an Assistant standing behind his Back. Then a longitudinal Incision thro' Skin, Fat, and Muscles, is to be made, from about two Fingers Breadth below the *Cartilago Thyroides*, or *Scutiformis*, or the *Portum Adami*, in the Middle of the Trachea, down to the very Sternum; so that the Length of the Incision may be equal to two or three, or even, in tall Patients, to four Fingers Breadth (See *Tab. 42. Trib. 14. A. A.*).

Then an Assistant is carefully to draw the Lips of this Orifice from each other, either with proper Hooks, or his Fingers; and having absorb'd and wip'd away the Blood, either by a Sponge, or a linen Cloth, so that the Aspera Arteria may be seen, three or four of the Annuli or Ringlets of this spiral Pipe are to be cut in such a manner, that the Incisions made in the Whole may form one continued Line: And thus, whatever Substance may have slip't into it, must be artfully and warily extricated, either by a Probe, Hook, or Forceps. This being done, the Wound is to be cleansed with a Sponge, and its Lips being kept in Contact by agglutinating Plasters, proper Compress and Bandage are to be apply'd. 'Tis afterwards carefully to be agglutinated by means of vulnerary Balsams, as in case of Wounds in the Aspera Arteria: And in this very manner, here in *Helmstadt*, I myself happily extracted a Piece of boil'd Mushroom from a Patient, who happening to laugh whilst he was supping Broth, in which, among other things, there were Mushrooms, had the Misfortune to have a Piece of one of them slip into his Arteria Aspera, by which he was in Danger of being suffocated. *Ravius* also informed me, that, in this very Method, he happily extracted a Bean from the Throat of a Patient; but the modern Surgeons are entirely silent with regard to this Method. Some, in order to induce a more speedy and *seemly* Cicatrix on the Wound, recommend the Method of Agglutination by Suture, as in the Cure of Hair-lips, by passing Needles thro' them, whether the Operation be performed for a Quinsey, or for some other Disorder. But, in my Opinion, 'tis highly improper to follow a Practice which is attended with immense Pain to the Patient, when, at the same time, a Method that is far milder, and equally safe and secure, may be fallen upon.

But if in a Quinsey, after the Use of proper Medicines, and repeated Evacuations of Blood from different Veins, there is still a Necessity for making an Incision in the Trachea, in order to prevent a Suffocation, the Operation may be performed in three different Manners, a Description of each of which my present Design calls for.

First then the Patient must be plac'd in a Bed, or Chair, with his Head inclin'd at the Surgeon's Discretion, and held firm by an Assistant, as we have already said. Then let the Surgeon make an Incision in that middle Part of the Throat, and in that Manner we have above directed, till he reaches the Trachea itself; or, if 'tis thought proper, the Skin also on both Sides may be laid hold on by the Surgeon, and his Assistant. Then it may be rais'd and cut longitudinally: After which, the Fat and Muscles lying above the Trachea may be cut. Some would have these Muscles first disengaged from the Trachea, or very warily separated from each other; but there is no Occasion for all this Labour, since they may be cut safely, and without any Danger. Then the Surgeon cleanses the Wound with a Sponge wrung out of warm Wine, or warm Spirit of Wine, for the more effectual stopping of the Blood, and orders his Assistant to separate and retract its Lips, either by Hooks, or his Fingers. Then he passes his Knife between two of the Annuli of the Trachea, or, in my Opinion, he may even pass it in such a manner, as to cut one of them, since by that means any Silver or Lead Pipe, whether round or flat, such as we have represented, (*Tab. 23. T, U, and X*) may the more conveniently be inserted into the Wound. But before the Surgeon withdraws his Knife, some Probe, fit for the Purpose, ought to be inserted into the Wound, by the Side of the Knife, that by its Assistance a Pipe may afterwards be more commodiously put into it. This Pipe is fixed in the Wound, by means of a Ligature pass'd thro' its Annuli, or small Holes, and carry'd round the Neck, and by a perforated Plaster. But great Care is to be taken, that the End of the Pipe, which is inserted into the Wound, be not allow'd to touch the posterior Part of the Aspera Arteria, lest by that means a troublesome Cough should be created. But that the Lungs may not



be injured by the external Cold, or by any Filth falling upon them, 'tis highly proper to lay upon the Pipe a Sponge often impregnated with warm Wine, and again wrung out; or, as *Garengeot* advises, a thin linen Cloth, and afterwards a perforated Plaster. These Directions being duly observed, Blood is to be drawn from the Veins in the Arms, or those of the Feet, those under the Tongue, or those situated in the Neck. Then Clysters, Gargarisms, Injections into the Fauces, Malagmas under the Chin, deep Cuppings on the Sides of the Neck, and on the Insides of the Thighs a little above the Knees, with such other Medicines as are effectual against a Quinsey, are diligently to be applied and continu'd, till such time as the Respiration either becomes free and easy, or the Patient dies; one or other of which generally happens within four Days after the Operation is performed. When, after the third or fourth Day, the Disease is found milder, and Respiration more easy, which may be most quickly and expeditiously judg'd of, by stopping up the Pipe with one Finger, the Pipe is to be taken out, and the Wound to be agglutinated and treated in the manner already directed. But when the Difficulty of Breathing at the Mouth is as yet found considerable, the Pipe ought to be allow'd to remain for some time longer in the Wound, and the other Medicines to be continued, either till Respiration becomes more free, or the Patient expires.

Another and more expeditious Manner of opening the Trachea is this: A two-edg'd Knife (represented Tab. 22. I) is apply'd to the above-mention'd Part of the Throat, and cautiously pass'd thro' Skin, Fat, and Muscles, into the Cavity of the Trachea itself, and a Pipe is forthwith inserted into the Wound, and artfully fix'd and secur'd in the Manner already directed. This Method of Operation is not only quicker, but the Cicatrix is less, than in the former Method.

The third and last Method of Operation is by an Instrument which the Surgeons call a *Trocar*, (see Tab. 42. Fig. 15, 16.) and is to be performed in such a Manner, that this Instrument, apply'd to the very Middle of the Trachea, may, as it were, at one Thrust, be pass'd thro' the Skin, Fat, and Muscles, into its very Cavity, and, having drawn out the perforating Part, let the Pipe remain in the Orifice, till the Patient breathes freely, or dies. This Method of Cure I learnt from the worthy *Fredericus Decker*, some time Professor of Physic at *Leyden*, and my old Master, who has also described it in Page 243. of his *Exercit. Pract.* This Method of performing the Operation seems, in one respect, to have the Advantage of all the rest, which is, that it is soon over, and the Pipe, at the same time, introduc'd into the Wound with far less Pain to the Patient, than by any other Method. But even in this Case, the same Caution ought to be used, and the same Directions follow'd, which we have above specified.

Nor ought this material Caution to be forgot, that the Operation is to be performed as soon as possible, and whilst as yet the Strength of the Patient lays a Foundation for the Hopes of the Surgeon: For, when the Patient's Strength is too far exhausted, and he already sinking, as it were, under the Agonies of Death, 'tis then too late, and, generally speaking, to no Purpose, to attempt the Operation for his Relief. It also seems to be a safe and prudent Step, in a Case of imminent Danger, to call in the Aid and Advice of the most skilful Physicians that can be had, before the Operation be attempted: For, since this Operation is by most, who are ignorant of its real Nature, esteem'd so dangerous, and pronounced so fatal to Life, 'tis highly probable, that if the Cure does not succeed so well as could be wish'd, the Surgeon shall be said to have murder'd the Patient, who is, in Reality, cut off by the Violence of his own Distemper; and thus the innocent Operator shall be loaded with all the Infamy and Reproach that Ignorance, and popular Prejudice, can throw upon him.

If Persons drowned in Water are already, tho' but just dead, their *Aspera Arteria* is to be open'd with all Expedition, either with an Incision-knife, or any other Instrument the Physician shall judge fitting. Then 'tis proper strongly to blow into the Orifice made, either with the naked Mouth, or by means of a Pipe, if any such Thing is at hand, because, in this Case, above all others, Delays are dangerous. For that justly celebrated Physician *Detbardingius*, some time Professor of Physic at *Rostoch*, now at *Copenhagen*, in a Dissertation upon this very Subject, publish'd not long ago, informs us, that by this Method, if speedily put in Execution, Life returns to the suffocated Patient with the injected Air, and that he is, in a manner, miraculously raised from the Dead. For this Reason I think the Operation is not, in Cases of this Nature, to be neglected, but performed, whenever the Opportunity offers, with all the Haste and Expedition imaginable.

I must here likewise observe, that this Operation, as it is neither performed in the *Larynx*, nor in the *Bronchia*, but in the *Aspera Arteria*, or *Trachea*, ought neither to be called *Laryngotomy*, nor *Bronchotomy*, as it commonly is by most Physicians and Surgeons; but rather, and that too more properly, *Tracheotomy*.

*Fredericus Montanus*, and *Scaeberus*, Professor at *Leipsic*, Vol. I.

have each of them published a Book on Bronchotomy; and *Johus Casserius* has treated of Laryngotomy in the Book above quoted, where he illustrates this Operation by a Variety of elegant Cuts. *René Moreau* also, in his *Épistola de Laryngotomia*, and *Th. Ficinus*, in his Chirurgical Books, have written very learnedly upon this Operation.

Mr. *Sharp* observes, that this Operation is easy to perform, and utterly void of any Danger whatsoever, notwithstanding the frightful Cautions laid down by Authors.

The Manner of doing it is by making a longitudinal Incision thro' the Skin, three Quarters of an Inch long, between the third and fourth Ring of the Trachea, if you have the Choice of the Place; and when you cannot make it so high, the Rule will be to wound a little below the Tumor. It is always advis'd to pinch up the Skin for this Process, which, however, may be left to the Discretion of the Surgeon. When the Skin is cut thro', you must make a small transverse Incision into the Wind-pipe, and immediately introduce a crooked Cannula near half an Inch long, of Silver or Lead, with a couple of little Rings at the Top of it, thro' which a Ribband may be pass'd round the Neck to keep it fix'd in the Wound.

Some have prescribed making an Incision thro' the Skin and Trachea at once, with a Lancet, or Knife, as the more easy and expeditious Method, and I once saw it perform'd in that Manner; but it prov'd very inconvenient; for the Wind-pipe in Respiration, moving up and down, slipp'd from the Orifice of the Skin, and made it very difficult to introduce the Cannula, and afterwards to maintain it in its Situation: Wherefore I think it absolutely necessary to make the external Incision longitudinal, and even pretty large, as I have directed above.

The Caution laid down of raising the *Sternohyoidei*, and *Sternothyroidei* Muscles, before cutting the Wind-pipe, is not to be regarded; and as to the Division of the recurrent Nerves, and great Blood-vessels, so much apprehended in this Operation, 'tis not in the least to be feared, since they are quite out of the Reach of the Instrument, as any one skill'd in the Anatomy of those Parts must very well know.

The Method of Dressing will be easily understood, since after the Patient can breathe by the natural Passage, if you withdraw the hollow Tent, the Wound will become a simple one; and, notwithstanding its Penetration thro' a Cartilage into a large Cavity, require a superficial Application only. *Sharp's Surgery*.

The following Case, communicated to the Royal Society by Dr. *Martyn*, contains something new and ingenious, and must not, for that Reason, be omitted.

A young Lad, being in a good State of Health, was all of a sudden taken ill with a violent Disorder in his Throat; in which, however, I could see nothing wrong, the Amygdalæ, and other Parts in View, being in all Appearance sound enough, but only looking a little drier than ordinary, without any external Tumor appearing about the Larynx, and no considerable Frequency or Strength in his Pulse: But he had great Pain and a *Dyspnœa*, with an Impossibility of swallowing either Liquids or Solids; every thing returning forcibly by the Mouth and Nose, when he made an Effort to get it over. From all which I reckon'd it an Angina of one of the worst Kinds, without any apparent Tumor, and the Seat of the Disease in the Larynx and the Fibres common to it, and the Top of the Gullet.

Notwithstanding repeated Bloodings, Blisterings between his Shoulders, Cupping, &c. the Disease continu'd so obstinate, and the Patient so like to suffocate, that next Day in the Afternoon his Friends, altho' very averse in the Morning, when I first propos'd the piercing the Wind-pipe, at length, earnestly desired, that the Operation might be performed; and the poor Lad bad us try any Experiment to preserve his Life. He had good Reason so to do; for, indeed, in all Probability, in a few Hours he would have been strangled to Death most miserably. We directly set about the Operation, which was done with such Success, that in less than four Days his Breathing being perfectly easy, and his Deglutition being almost so, we remov'd the Cannula, and left the Glottis to do its own Office.

According to *Cælius Aurelianus*, and the Author of the *Liber Introductorius*, ascribed to *Galen*, Bronchotomy was proposed by *Aesclepiades*, (however inconsistent with his Delicacy, and the rest of his Character, the seeming Harshness of this Operation may appear) and is described and earnestly recommended by almost all the Systematical Writers of Surgery, from *Paulus of Ægina*, and, as he says, *Aetyllus*, and some others of the best Surgeons before him, down to the present Times. But when they are at so much Pains to defend the Reasonableness of it, and when they shew so much Fondness of citing and telling Examples of healing accidental Wounds of the Trachea, without ever mentioning their own regular Performance of the Operation (which would have been a shorter, and much more effectual Recommendation of it); when, I say, I consider all this, I find myself oblig'd to think, that it has very seldom been reduced to Practice. So rare had it been, that *Aræteus*, a Man of vast Judgment and Skill in Diseases, thought the Operation had never been actually done with Success. And *Cælius Aure-*



*lianus* looked on it as an impracticable Whim of *Aesclepiades*. Neither *Avenzoar*, nor *Albucasis*, knew any thing of their Countrymen who had undertaken it. And the *Arabians* are reputed to have been hardy Surgeons enough. The most I know of amongst them of this Kind is in *Avenzoar*, who try'd the Experiment on a Goat, and cured the Wound, which shews the Ingeniousness and Industry of the Author: For as to what you will find some Writers telling you, that *Rases* saw *Andrusius* the Physician do it (the Copy I looked into, printed at Venice 1505. calls him *Aucilifius*; and, perhaps, it should be *Antyllus* for them both); I think this flows from a mistaken Interpretation of that Author's Meaning. If you read the whole Context, I think you will easily conceive, that all he says of the Operation is upon Hearsay; and consequently, that he had only seen in Books, that such an one had done it. That most accomplished Anatomist and Surgeon *Fabricius ab Aquapendente* frankly acknowledges, that neither he, nor any of his Contemporaries, had ever ventur'd to perform it: Neither does his Successor in the Profession of Surgery, and his Rival in Anatomy, *Julius Cæsserius* of *Placentia*, pretend to have done it, tho' he has endeavour'd to illustrate the Operation by some very neat Figures, which you will not readily suspect to be from any but dead Bodies. And next to him *M. Aurelius Severinus*, who was a very judicious and learned Man, and the best and boldest Surgeon of his Time, though he recommends it with a great deal of Warmth and Keenness, yet it seems, even in his latter Days, he never had Occasion to try it; so that the first undoubted and distinctly recorded History I can find of this Operation being actually practised, is in the learned *Anton. Musa Brasavolus*, who performed it in a desperate Quinsy, when the Surgeon refused to do it; and repeated it again in the like Case. Mr. *Arnaud*, the *Frenchman*, did it, but his Patient died: However, his Countryman, Mr. *Binard*, had better Success. Dr. *Freind* cites *Purman* doing it; and tells us of another Case communicated to him by a Surgeon, whom he does not name. And besides these, I believe there are but few Instances can be produced, of any who really performed the Operation on a living Person. I hear now, that Mr. *Baxter*, a Surgeon in *Coupar*, of *Pife*, not far from us, and Dr. *Oliphant*, in *Gask* in *Perthshire*, did it with very good Success within these few Years.

In the actual Performance of the Operation they certainly did, or might have observed some things omitted by Authors, and even some not perfectly agreeing with the common Accounts that are given of it. I think it worth while to observe, that in the very Cutting, before we got a free Aperture into the Trachea, and the Pipe introduced, the Patient felt some Relief; which, I thought, might be ascribed to the Effusion of Blood in the Operation; a small Quantity whereof, evacuated so near the Part affected, could not, according to the true Laws of Hydraulics, and the Observations and Practice of the Antients, (however disagreeing with *Bellini's* Theory) but make a more considerable Revulsion, than a much greater, taken away at a great Distance. Whence the judicious *Fabricius ab Aquapendente*, with very good Reason, supposed, that by the Derivation here, the Patient would be more apt to feel some Relief, than Trouble; of which *Julius Guastavinus* too made no Doubt in his Dispute upon this Subject against *Aræteus*. And now their Supposition and Conjecture is confirmed by Experience. And since there continued a greater Flux of Blood to the Wound while it was suppurating, I reckoned the Circulation in the Muscles of the Larynx to be with less Force than ordinary, and so probably to contribute to the diminishing the Strength of the Voice, which, for a good many Days after the Operation, was observed to be much weaker than it used to be; which I all along thought was rather owing to this, and the Lowness of his Body by his slender Diet, than to any Hurt of the recurrent Nerves, which, being cut, do indeed destroy the Voice; but by their Deepness, are in less Hazard than some in old Times used to think.

In doing the Operation on a living Person, one cannot but remark at the very first, that the Cannula should not be made near so short as is ordinarily proposed in Books and chirurgical Lectures: For we found, that, upon cutting, the Parts, especially the Thyroid Gland, (which is not so much minded in most of the common Descriptions of this Operation as should be) soon become so tumified, that it will require a Pipe above an Inch long, to penetrate sufficiently into the Aspera Arteria, which is double *Garengot's* Allowance of six Lines; who is one of the recentest Writers, and has communicated to us all the Surgery the *French* are Masters of. The leaden Pipe we had prepared not answering the Design, that which we made use of was too long, and too small, being the common Cannula for tapping in the Dropfy, flattened a little at the End, and hindered by a very thick Compress, perforated in the Middle, from penetrating too deep into the Trachea.

The mucous Particles, and Steams arising from the Lungs, made a constant Weeping of a thin slavery Liquor, from the Mouth of the Pipe, Part whereof thickening, and stuffing its Cavity, sometimes very much incommoded the Patient's Respi-

ration by it, so as to render it necessary to have it taken out and cleaned. And hence, when some Moderns very precisely bid us put a thin Slice of Sponge, or a Bit of Muslin, &c. close over the Orifice of the Cannula, to prevent the Ingress of Dust, Down, or the like, into the Lungs, it confirms what I said before, of the Unusualness of the Operation, and looks as if they had only contemplated the Matter in Abstraction, as the Metaphysicians say, without considering they had not to do with a pure thin dry Air, but with a heterogeneous Fluid, that is moistened and thickened with viscid Particles, which are apt to run together in stiff Concretions. And therefore, though it must be acknowledged, that there would have been less Hazard of a Stoppage, if our Cannula had been shorter, and wider, especially at the Mouth, I cannot but think it an ingenious Proposal of one of our Ministers here, to make the Pipe double, or one within another, that the innermost might safely and easily be taken out and cleaned when necessary, without any Molestation to the Patient: For it is no small Trouble to him, to be obliged to have the Bandage frequently removed, and the Pipe fitted anew to the Orifice made in the Trachea.

And indeed we found no Inconvenience in our Patient's breathing the Air as it passed through the Pipe, without any cleansing or intercepting Medium, though the House was none of the cleanest, being an ordinary Tradesman's here. But if by a larger, and consequently a more patent Tube, one, especially of more delicate and ticklish Lungs, should be incommoded that way, I think the Access of Dust, &c. might conveniently enough be hindered by a Piece of Muslin, or thin Hair Crape, tied slackly about the Neck over the Orifice of the Cannula, so however, as not to touch it, or to be wetted by the Liquor coming from it.

The Patient was soon perfectly recovered: He breathes, speaks, eats, drinks, and performs all the other Offices of Life, and goes about his Calling as formerly. And now I cannot but take Notice of the needless Pains some Writers are in about healing up the Wound by Bandaging, Stitching, &c. For we found it easily to fill up of itself, in a very few Days, by only dressing it every other Day, or so, with a soft Tent, made less and less every Dressing, and armed in the common way with *Linimentum Arcei*. I believe indeed it would have taken a little more Time to heal, if our Patient had been older. *Phil. Trans. Abr. Vol. 8.*

In the preceding Account of a Quinsy, I have purposely omitted *Boerhaave's* Sentiments concerning this Distemper, which I reserved for this Place, that they may serve as a Recapitulation of what has been already specify'd, and that the Reader may have in one View, the Sum of what has been delivered by a Multitude of Authors; and at the same time the Opinion of this Author, an excellent Judge of Medicinal Subjects.

A very difficult and excessively painful Deglutition, or Respiration, or both together, which happens from any morbid Cause acting upon the Organs subservient to these Functions situated above the Lungs and Stomach, is called a *Quinsy*, of which two Species have been observed; one without any manifest Tumor, either internal, or external; in the other, some sort of Tumor is always discovered in some of the Organs before-mentioned.

The first Species usually happens at the End of Chronical Distempers, principally after great and frequently repeated Evacuations. It is attended with a Paleness, Extenuation, and Dryness of the Fauces; whence 'tis evident, that the Nerves and Muscles of the Parts affected are paralytic. It is almost always a Sign of approaching Death, and very seldom admits of any Cure; but, whenever it does, it must be performed by Remedies which are warming and corroborating, and which fill the empty Vessels with good vital Juices, such as nourishing Aliment taken in Quantities proportioned to the digestive Powers, and Wine.

This Species also sometimes appears without any manifest Signs of a preceding Distemper, and then is generally fatal. Dissections of Bodies after Death, have discovered that this Case is almost always attended with a Suppuration of the Lungs.

That Species which appears with a Tumor, takes different Denominations, either from the Nature of the Tumor, or the Part which it affects. Hence Quinsys are distinguished into Oedematous, Catarrhus, Inflammatory, Purulent, Scirrhus, Cancerous, and Convulsive.

These Tumors affect the Tongue, and its Muscles; the Palate, Tonsils, the Uvula, and its Muscles; the Cavities of the Os Frontis, the Maxilla superior, and Os Sphenoides, when a Polypus, arising in any of these, increases to such a Degree as to stop up the Nostrils, depress the pendulous Veil of the Palate, straighten the Fauces, and obstruct the Passages of the Pharynx and Larynx; either some or all the Muscles of the Os Hyoides; the Muscles of the Larynx, whether internal, external, proper or common; the internal Muscular Membrane of the Aspera Arteria; the superior Muscles of the Pharynx, and Oesophagus, otherwise called *Sphincter Gulae*; the muscular Parts of the Oesophagus; and those Glands which are situated



situated so near the Aspera Arteria and Œsophagus, that, by their Tumefaction, these Conduits may be compressed, amongst which are all the Salival Glands, and others dispersed about these Parts, and lastly, the Thyroide Glands.

From this History of the Disease, Reasons may be readily assigned for all those various, unforeseen, and fatal Accidents, which sometimes attend a Quinsy.

But as this Distemper is attended with a Variety of Circumstances, which are productive of various Events, it will be necessary to specify Particulars.

*Of a Quinsy arising from a watry, œdematose, and catarrhus Tumor.*

This is a laborious and painful Exercise of Respiration and Deglutition, from a lymphatic or œdematose Tumor of the Parts destined for these Functions, or those adjacent to them.

The Seat of such a Tumor, like that of every Concervation of Lymph, is in that Part of the Glands, where the Lymph, secreted by the Arteries, is separated from the Mass of Blood, and deposited.

The Cause therefore of such a Tumor is, whatever prevents a free Discharge of the Lymph from these Reservoirs; and the Causes of such Obstructions are manifold and various, as,

Any Compressure of the Vessels into which the excretory Ducts of these Glands naturally discharge the secreted Fluid.

An Obstruction formed in the Follicle of the Glands, from chalky, pituitous, calculous, fungous, or such-like Concretions.

The same Kind of Concretions in the Emissaries, or excretory Ducts, of these Glands.

A Compressure of any of the Parts above-mentioned.

Cold apply'd to the Extremities of the Excretory Ducts.

A languid Circulation of the Humours.

The Effects of these Obstructions are a watry, white, cold Tumor; a Compression of the adjacent Parts; and consequently an Impediment of those Functions, which depend upon the natural State of these Parts.

Hence the Diagnostic Signs will be easily known; and also the Prognostic, which is, that if the Tumor is suffered to advance much, the Patient will soon be suffocated.

The Cure is to be attempted by resolving and removing the obstructing Matter, by means of emollient, aperient, and relaxing Remedies, apply'd either in the Form of Fomentations, Cataplasms, Gargarisms, Injections, Collutions, or Vapours; or if necessary, by Frictions apply'd to the Part affected, Caustics convey'd through a Cannula to the Part, or by Incisions, which are preferable to Caustics.

Mean time, such Remedies as diminish the Quantity of Lymph, by evacuating a Portion of it either at the Mouth, or distant Parts of the Body, are by no means to be neglected. Such are,

Apophlegmatisms, which consist of such Ingredients as by stimulating the Parts affected, or those adjacent to them, incline them to discharge a considerable Quantity of the morbid Matter, or of Lymph easily convertible into it. Of this Sort are the Roots of Pellitory of Spain, and Horse-radish, Mastich, Ginger, Pepper, and particularly Nitre. In the *Pharmacopœia Pauperum*, there is a Powder under the Title of *Pulvis Syanchicus*, which is very well adapted to these Purposes, and should seem of Efficacy in an œdematous Quinsy, tho' for one of the inflammatory Kind, for which the Author recommends it, much too acrid.

Take Salt of Prunella, (or Nitre) an Ounce and an half; white Pepper, three Drams; white Sugar, four Ounces; make into a Powder for the Patient to hold in his Mouth, and swallow gently. This causes a large Evacuation of Saliva.

As Vesicatories draw off a considerable Quantity of Lymph, and direct it from the Fauces to distant Parts, where it is less capable of doing Mischief; these are also of singular Use in a Quinsy of this Kind. They are to be apply'd to the Back, under the Ears, or to any other Part.

Such gentle Sudorifics also as are not accompany'd with any considerable Degree of Heat, as they contribute to the Discharge of the serous Humours, are of Service, if administered internally, or apply'd externally, in a dry Form. As are, for the like Reasons, Diuretics of the same Kind. But those Kinds of Cathartics, which are called *Hydragogues*, from their Efficacy in evacuating watry Humours, are, in this Case, of singular Use. Of this Sort are Jallop, Scammony, and their Preparations.

Mean time, the Patient must avoid large Quantities of Fluids, and take Aliments which are warm and drying; for by this means he will be carrying on the End proposed, that of diminishing the Quantity of Lymph in the Habit.

Lastly, the Circulation of Blood must be considered; and if this be found too languid, it must be accelerated by means adapted to that Purpose; amongst which are Frictions of the exter-

nal Parts; and volatile oily aromatic Salts administered internally.

*A Scirrhus Quinsy.*

It sometimes happens, that a scirrhus Tumor occupies the Tonsils, or some other of the Glands mentioned above; and this is said to be frequently caused by exposing these Glands, weakened by a preceding Tumor, before they have recovered their natural Tone and Strength, to the cold Air, or too cold Applications.

This Case may be distinguished by the ordinary Signs of a Scirrhus (See SCIRRHUS). And if it be foreseen, that it will be, or if it actually is, any Impediment to Deglutition, or Respiration, or both, the safest way is to extirpate the Scirrhus by Excision, if it can be easily come at. Or it may be wasted by Degrees with corroding Applications. For this Purpose, let a Pledget of Lint, fitted to the Shape of a Quill, be impregnated with Oil of Tartar *per Deliquium*, and apply'd immediately to the Part affected, by means of a Cannula.

A stronger Cathartic may be prepared of Quick-lime; but there is more Danger in the Application.

*An inflammatory Quinsy.*

When the Muscles and Glands employed in Respiration and Deglutition, or those adjacent to them, are by any means inflamed, an inflammatory Quinsy is formed, which is particularly to be regarded, because of its excessive Acuteness, and often insuperable Violence.

The Causes of this, in general, are the same as those which are productive of Inflammations in other Parts (See INFLAMMATIO). But a great many Causes may contribute to determine the Inflammation to the Parts above specify'd, particularly to the Larynx, Pharynx, Os Hyoides, and their Muscles, and to the superior Part of the Aspera Arteria, which, just under the Glottis, is furnished with a prodigious Number of Blood-vessels, running in Directions somewhat peculiar.

Among these Causes may be numbered, a natural Disposition, which principally prevails in young Constitutions, abounding with Blood, and particularly in those who have red Hair.

Frequent and violent Exercise of the Parts above-mentioned, either in Declaiming, Singing, or Vociferation; riding briskly against a cold Wind; blowing into musical Instruments; great Heat succeeding intense Cold, in the Spring; Dryness of the Fauces, occasioned by respiring hot Air, in the Summer; or in an inflammatory Fever.

When an Inflammation is produced by the Causes above-mentioned, very terrible Symptoms are excited, which are various, as the Disorder happens principally to affect different Parts.

Thus, if the internal Muscular Membrane of the Aspera Arteria is only affected, a Tumor, Heat, Pain, and burning acute Fever are excited, without any external Signs of the Distemper. In this Case the Voice is small, shrill, and uttered with a hissing Noise. Inspiration is excessively painful; Respiration is small and frequent, and scarcely performed but in an erect Posture, and then not without much Difficulty; hence the Circulation of the Blood through the Lungs is much obstructed, the Pulse begins to sink surprisingly soon, great Anxieties come on, and the Patient quickly expires. This is one of those fatal Cases, which destroy without any external Appearance; and the nearer the Seat is to the Glottis and Epiglottis, the more fatal it is.

If the Larynx is affected with an acute Inflammation, which principally seizes the Musculus Albus of the Glottis, together with the fleshy Muscles, which, when they act, close it, a most terrible and strangulating Quinsy arises, because, upon this Occasion, the Passage of the Air from and to the Lungs is utterly obstructed by the closing of the Glottis.

The Signs of this Species of Quinsy are much the same as those of the preceding, except that the Pain is intolerable during the Elevation of the Larynx, in order to swallow; and is remarkably increased by Speaking, or Vociferation; the Voice is extremely acute and shrill; excessive Anxieties come on, and Death quickly ensues. This is, of all those Quinsys, without any external Signs, the most dangerous.

If the Muscles only, which are employ'd in elevating the Os Hyoides and Larynx, suffer an acute Inflammation, it may be distinguished by these evident Signs: Respiration is tolerably free and easy; but the first Part of the Action of Deglutition is attended with excessive Pain, because on this Occasion the Muscles above-mentioned act. Add to these the general Signs of an Inflammation, which will appear evidently in these Muscles upon Examination.

When the Pharynx alone is affected, the specific Signs of it will appear upon inspecting the Fauces. In this Case, Respiration is tolerably easy; but Deglutition extremely painful, or utterly impossible; for upon any Attempt to swallow, the Substance intended to be convey'd to the Stomach, is return'd by the Nose, or sometimes forced into the Aspera Arteria, there exciting a violent Cough. Hence arises an Impossibility of taking



taking any Aliment, either solid or fluid, the Consequence of which is, that the Body must become extenuated and dry; and that the Fluids must contract an Acrimony, for want of a fresh Supply of balsamic Chyle. The Fever, however, in this Case, is not so intense, as in those preceding; nor does it so suddenly terminate in Death.

If the Tonsils, Uvula, and pendulous Veil of the Palate, together with the Muscles called *Pterygostaphylini*, are much inflam'd, nearly the same Symptoms will arise as in the preceding Case. Respiration is, however, somewhat laborious, and is little, or not at all perform'd thro' the Nose, and by the Fauces not without some Difficulty; whatever is attempted to be swallowed, is forced back again thro' the Mouth, by reason of the Obstruction it meets with, and the excessive Pain it excites; there is a perpetual Discharge of Saliva by hawking, and a continual and copious Distillation of Phlegm into the Cavities of the Tonsils; an acute Pain is perceiv'd in the internal Ear, and the *Tuba Eustachiana*, which passes from the Fauces to the Ear; a crackling Noise is perceived in the Ear, during Deglutition, and sometimes utter Deafness ensues. This Case is in our Days frequent from the Venereal Disease, and is attended with much Danger.

If all or most of these Parts are inflam'd, the Disease is in Proportion more severe, as the Inflammation affects the greater Number of the Parts above specify'd; and hence more Symptoms may be expected to arise, and those of a worse Kind.

For the Return of the Blood into or thro' the external Jugulars now compress'd, being intercepted, the Fauces, Lips, Tongue, and Face, swell; the Tongue hangs out of the Mouth, is intorted and inflamed; the Eyes are red, prominent, and ghastly; the Brain is, as it were, suffocated by an Abundance of Blood retained in it; hence the Sight, Hearing and Feeling, are rendered dull; hence also a Delirium, a perpetual Gaping of the Mouth, a Stertor, an Impossibility of lying down, because of the Strangulation attending that Posture; and a manifest Redness, Tumor, Pain, and Pulsation, in the Breast and Neck; whence the Jugular, and Frontal Veins, and those under the Tongue, called *Raninae*, becoming varicose, are distended.

These inflammatory Quinsies run thro' the same Stages as other Inflammations, are susceptible of the same Alterations, and, like them, terminate in Resolution, Suppuration, a Gangrene, or Scirrhus, unless they strangle the Patient before any of these can happen. See INFLAMMATIO.

Therefore as soon as we are satisfied by the Signs above specify'd, that the internal Muscular Membrane of the Aspera Arteria, or the Muscles about the Glottis and Larynx, are affected, we must immediately inquire, whether the Distemper is still in a State of Inflammation, which may be discovered by the Signs mentioned under the Article INFLAMMATIO; and, if we find it is, Resolution must by all possible means be instantly attempted. See INFLAMMATIO.

Therefore let Blood be immediately taken away by a large Orifice, and in great Quantities, and let this be repeated, till such time as a general Weakness, Paleness, Refrigeration, and Subsiding of the Vessels, shew that the Force of what remains is not capable of augmenting the Tumor and Rigidity of the small Vessels about the Parts affected.

This is nearly the Direction of *Hippocrates*, who, in his third Book of Diseases, advises, as the first Step in the Cure of a Quinsy, to take away Blood, which, he says, is of most Service, if drawn from under the Breast. He also orders Blood to be taken from the Cubit.

Next, strong Purges must be administered, either by the Mouth, or by Clysters, and these must be repeated.

The following Purge is adapted to this Intention:

Take of Diagrydium, eight Grains; make an Emulsion with half an Ounce of Water; to which add an Ounce and an half of Syrup of Sena, for a Draught.

A proper Clyster may be thus prepared:

Take Sena-leaves, an Ounce; boil these in a sufficient Quantity of Water to eight Ounces; and to the strained Liquor, add of Nitre and Syrup of Sena, each an Ounce. Boerh. de Mat. Medic.

This is exactly conformable to the Advice of *Hippocrates*, who, in the Place above quoted, says, that the Belly must be purged downwards with a purging Medicine, or a Clyster.

The Regimen must be extremely slender, both with respect to solid and fluid Aliments.

*Hippocrates* also orders the Patient to abstain entirely from Wine, and to sup the strained Juice of Ptisan, in the Treatise above-mentioned.

The other Medicines should be principally nitrous and subacid; for Nitre is of all Remedies, perhaps, the most powerful for resolving Inflammations.

Mean time, let the Patient receive some tepid, moist, resolving Vapour at his Mouth; let Fomentations be used externally; and let Vesicatories be apply'd, in order to derive a Portion of the offending Humours from the Parts affected.

The following Form may serve for an Example of a Vapour:

Take Elder, Rose, and Marigold Vinegar, each an Ounce; Elder-flower Water, six Ounces: Mix together; let the Vapour of this be convey'd to the Fauces by means of a Funnel. De Mat. Medic.

*Hippocrates* also advises Fumigations of the Fauces, with Cilician Hyssop, Sulphur, and Asphaltus.

When the Muscles which are employ'd in elevating the Os Hyoides and Larynx, are only affected, the Case is not so dangerous; the same Sort of Remedies, however, are required, tho' not so powerful. In this Case, anodyne, relaxing, and emollient Cataplasms, apply'd externally, are particularly useful. For this Purpose,

Take of the Lens Palustris, (Ducks Meat) six Ounces; of the Flowers of Water-lillies, five Ounces; Flowers of Poppies, eight Ounces; of Marsh-mallows, six Ounces; of Elder and Melilot, each four Ounces. Boil these in Water, adding at the End of the Decoction, two Swallows Nests, and a sufficient Quantity of Meal of Lin-seed; make a Cataplasm with three Ounces of Oil of White Lillies.

The strained Liquor may be used for a Fomentation. De Mater. Medica.

If the Disorder affects the Pharynx only, or the Tonsils, Uvula, and pendulous Veil of the Palate, with the *Musculi Pterygostaphylini*, or many of these Parts together, and the State of Inflammation still subsists, all the Remedies above specify'd are to be called in to our Assistance, that by their united Force they may relieve the Patient. But besides these, the Mouth and Fauces must be kept continually moist, by mild attenuating nitrous Liquids, diluting aqueous Fluids, or relaxing Decoctions of pinguious Ingredients; these must be kept perpetually in the Mouth, without Motion, or they may be gargled gently, or injected with a Syringe. But the Benefit arising from these depends upon their continual Use; for otherwise the Parts grow immediately dry.

Take of the Decoction of the Ingredients, specify'd in the preceding Prescription, twelve Ounces; Elder Vinegar, Syrup of Marsh-mallows, each two Ounces; purify'd Nitre, two Ounces; mix for a Gargarism: Or,

Take of fat Figs, twenty-two; Leaves of Marsh-mallows, two Ounces. Boil for a considerable time, and use the strained Liquor in the Manner above directed.

But if the Remedies above-mentioned are not at all made use of, or are applied too late, or without Effect, provided the Distemper is recent, threatens Strangulation, and resides in any Part above the Place where the Incision is to be made, the Operation of Bronchotomy must be performed, after prognosticating the Danger of the Distemper.

After this Operation, the Causes of the Difficulty in Respiration, which rendered it necessary, must be removed by the Methods above specify'd; and if, during the Cure, the Patient is not able to swallow sufficiently for his Nourishment, nutritive Clysters must be frequently administered, after emptying the Intestines by one which is cathartic.

Take of good Broth of Flesh-meat, ten Ounces; Nitre, ten Grains; Spirit of Salt, six Drops; make a Clyster to be injected every eight Hours, and retain'd as long as is possible.

If the Inflammation has proceeded so far, that the Part affected begins to suppurate, which may be known by the Signs of an Abscess, (See ANSCUSSUS, and INFLAMMATIO) Resolution being no longer possible, we must endeavour to free the Patient from the offending Matter, by promoting an Abscess. See ANSCUSSUS.

Use therefore emollient Gargarisms perpetually; apply large relaxing Cataplasms; and, when the Matter of the Abscess is perfectly formed, and the exact Situation of it is discovered, let it be opened. Mean time, if it should be absolutely necessary for the sake of Respiration, the Operation of Bronchotomy may be performed.

It must be remark'd, that the Species of Quinsy which affects the internal Membrane of the Aspera Arteria, and the Larynx with its Muscles, can very seldom arrive at Suppuration, because, if not resolv'd, it must be fatal before this can happen.



# A N G

As all Inflammations may terminate in a Gangrene, that which causes any Species of inflammatory Quinsy may do so likewise. This Case may be distinguish'd by the general Signs of a Gangrene (see GANGRENE) apply'd to the Parts affected, and whose Functions are impair'd ; and also by Signs which are peculiar to this Disease.

Thus if a Tumor, and Redness, which were before conspicuous, suddenly disappear without evident Cause ; if the Pain vanishes in like manner ; if the Fauces on a sudden become equal, smooth, dry, and livid ; we may be certain, that a Gangrene is begun ; and if so, it admits of no Remedy.

An Inflammation of the Tonsils, Uvula, and Palate, may terminate in a Scirrhus, which may be readily discover'd by the general Signs of a Scirrhus, (see SCIRRHUS) but is not so easily cur'd, especially when it degenerates into a Cancer.

If the Nerves which convey Sensation and Motion to the Organs of Deglutition and Respiration, are by any means prevented from exercising their Functions upon those Parts, a nervous or paralytic Quinsy is form'd : This is said sometimes to happen from a Luxation of the Tooth-like Process of the second Vertebra of the Neck inwards.

If the Muscles of the Larynx or Pharynx are convulsed by any Cause whatever, a sudden and suffocating Quinsy may arise. This frequently happens in Epileptic, Spasmodic, Hypochondriac, and Hysterical Cases, where it frequently goes off, and returns, without any great Danger. As it is only a Symptom of the original Disorder, and depends upon that, it is to be cur'd by Remedies adapted to remove its Cause.

The Musculus Oesophagus, or Sphincter Gulæ, when it acts, presses the Pharynx to the back Part of the Larynx, and stops the Orifice of the Pharynx ; now this also happens in involuntary Contractions of this Muscle, so that Wind coming from the Stomach, and not being able to pass the Orifice of the Pharynx, swells the Oesophagus, and causes a Sensation of a Swelling in the Throat.

From the preceding History of Quinsys, all the Prognostics related above are readily accounted for, and confirm'd. I shall only remark further in this Place, that any artificial Compression of the Jugular Veins will cause a Discharge of frothy Saliva from the Mouth, as well as that Compression of these Veins, which happens from a Quinsy.

ANGIOSPERMOS, Ἀγγειόσπερμος, from ἀγγείον, a Vessel, and σπέρμα, a Seed, an Epithet for such Plants as have their Seed or Fruit inclosed in two Membranes, not easily separable from the Nucleus, by way of Distinction from the Gymnospermoi, γυμνόσπερμοι, derived from γυμνός, naked, &c. which have their Seed for the most part surrounded with three Integuments. *Cestellus* from *Volcamer's Flor. Noremburg*, and the *Acta Erudit. Lips.*

ANGLICUS SUDOR. See SUDOR ANGLICUS.

ANGOLAM, H. M. P. 4. T. 17. p. 39. *Arbor Indica baccifera, Fructu umbilicato rotundo, Cerasi Magnitudine, divarico.*

It is a very tall and beautiful Tree, running up to an hundred Feet in Height, and about twelve Feet in Thickness, and grows in the rocky, sandy, and mountainous Parts of *Mangatti*, and other Provinces of *Malabar* ; it is an Evergreen, bears a Fruit like a Cherry, and lives a long time.

This Tree is accounted by the *Malabarians* an Emblem of Royal Majesty, because its Flowers stick along upon its stiff Thorns in the Form of an Imperial Diadem.

The expressed Juice of the Root kills Worms, and purges bilious and phlegmatic Humours, and evacuates the Water of hydropical Persons. The Root pulverized is accounted good against the Bites of Serpents, and other venomous Creatures. *Raii Hist. Plant.*

ANGOR, Ἄγωνία, ἀδυναμία, is a Contraction and Concentration of the natural Heat, the Consequence of which is a Pain of the Heart, Palpitation, and Sadness ; and if it happens in the Beginning of acute Fevers, it is a very bad Prognostic. *Galen. in Hippocr. Epid. L. 1.* See AGONIA.

ANGOS, ἄγγος, the same as ἀγγείον, signifying a Vessel in general, and a Receptacle of Humours. Used once by *Hippocrates, Lib. 6. Epid.* as *Galen* expounds him, in a special Sense for the Uterus.

ANGSANA, Offic. *Angsava*, Ephem. Germ. Anno 13. *frut. Decur. 11. Anno 13. p. 107.* *Draco arbor Indica siliquosa, Populi folio, Angsana vel Angsava Javanica*, Commel. Hort. Amst. 1. 213. Tab. 109. *Raii Dendr. 113.*

It grows in the *East-Indies* ; the Part used in Medicine is the Liquor which distils from the wounded Tree, and condenses into a red Tear, wrapt in thin, reedy Coverings, as sold in the Shops.

The Gum of this Tree, as the very learned and ingenious *Commelin* says, is sold in the Shops for Sanguis Draconis. Hence I cannot but observe, that either our Botanical Authors are at a great Loss, and in much Confusion and Perplexity, about what Kind of Tree this should be, or else there are several Sorts of Trees which produce this Gum.

It is esteem'd an Astringent, and an excellent Remedy in Aphthæ. *Dale. Raii Hist. Plant.*

VOL. I.

# A N G

ANGUILLA, the Eel, thus distinguish'd :

*Anguilla*, Offic. Schrod. 325. Mer. Pin. 188. Aldrov. de Pisc. 544. Gesn. de Aquat. 40. Charlt. de Pisc. 34. Salv. de Aquat. 75. Rondel. de Pisc. 2. 198. Schonef. Ichth. 14. Bellon. de Aquat. 295. *Raii Ichth. 109. Ejusd. Synop. Pisc. 37. Jonst. de Pisc. 81.* THE EEL.

There are two Sorts of them, the large and the small, of both which you are to chuse those that are tender, fat, well fed, and that have been taken in a fine clear River.

They are very nourishing, and well tasted ; they are sometimes salted for the better keeping of them, and then they are more wholesome, than at any other time.

They produce a viscous and thick Juice, are hard of Digestion, cause Wind, are injurious to those who are afflicted with the Gout, or Stone, and have a bad Stomach : It is also pretended, that they hinder the Catamenia. *Hippocrates, L. de intern. Aff.* would have them used by those that are lean and wasted, and subject to the Spleen. Lastly, there are some who will not eat the Head of an Eel, because they fancy it is prejudicial to their Health.

The Eel contains much Oil, volatile Salt, and viscous and gross Phlegm.

It agrees at all times with young People of a bilious and hot Constitution, who abound with thin and sharp Humours, provided they have a good Stomach, and that they use it moderately.

## R E M A R K S.

The Eel is a fresh-water Fish well known ; sometimes it is found in the Sea, not that 'tis produced there, but because it goes often out of Rivers into the Sea, and so back again into Rivers ; it delights in pure and running Waters ; and they assure us she grows lean, poor, and dies at last, when confined to muddy Water. She requires also a great deal of Water, for otherwise she dies ; as also it happens to many other Fishes. It is said she cannot bear any considerable Difference of living ; for in Case she should in Summer-time be conveyed into a much colder Water than that wherein she was before, she is soon destroyed. In the mean time, they say, she can live out of the Water five or six Days, provided the North Wind blows at that time ; she feeds upon Roots, Herbs, Fish, Insects, and any thing she can find in the Bottom of Rivers. *Athenæus* says, he had seen Eels in a certain Country, which were so far tamed, that if they offered them any thing to eat, they would come and take it out of the Persons Hands. This Fish lives commonly seven or eight Years. *Aristotle* assures us, that in dissecting Eels, he found no Difference of Sex in them ; that they had neither Seed, Eggs, Matrix, nor Seminal Pipes ; and that they did not ingender, inasmuch that 'tis pretended, they were generated out of the Corruption that is in Mud. *Pliny* frames another Symptom for the Explication of it : He says, that when the Eels rub themselves against Rocks, the Off-scouring of their Bodies comes afterwards to take Life, and so gives Being to an Infinity of small Eels ; but neither of the Explications seem to be easily apprehended. I am confident, if those two famous Authors were now alive, and acquainted with the new Anatomy, they would be more cautious of advancing Notions, that have so little Resemblance of Truth in them. It is now discover'd, that they are viviparous.

The Eel is good Aliment, and much used ; she is tender, soft, and nourishing, because she contains many oily and balsamic Parts : She has also a great many that are dull, viscous, and gross, which makes the Eel hard of Digestion, and apt to produce the many ill Effects we have before-mentioned. In the mean time the Eel that has been salted to keep, doth not produce so many bad Effects ; because one Part of its viscous and gross Phlegm is spent, and the other attenuated and scattered by the Salt.

They eat Eels either roasted or boiled : Those that are roasted, seem to me to be more wholesome than the other ; and the Reason is, because they are thereby the more divested of their viscous Phlegm, than by the other way. They should also be well season'd, and you should drink good Wine upon them, in order to help the digesting of their Phlegm in the Stomach.

The Fat of an Eel is looked upon to be good to take away the Signs of the Small-pox in the Face, to cure the Piles, and to make the Hair grow : It is also put into the Ears to help Hearing.

They make a kind of Mucilage of Eel's Skin, by steeping and boiling it in Water, which is applied to Swellings, in order to the softening and dissolving of them : It is good for *Hernia's*. *Lemery on Foods.*

The Oil of the Eel is so offensive to some Stomachs, that they cannot bear it without being sick.

As the Eel is a Fish of Prey, the Salts for that Reason must be more plentiful and exalted.

ANGUIS.

*Serpens*, Offic. Schrod. 5. 305. *Serpens Anguis*, Schw. Rept. 137. *Anguis*, Gesn. de Serp. 43. *Anguis Coluber*, Mer.



Mer. Pin. 204. *Natrix torquata*, Aldrov. Hist. Serp. 287. Jonf. de Serp. 89. Raii Synop. A. 334. Charlt. Exer. 35. THE SNAKE.

The Fat and Slough, or last Skin, are used in Medicine. The Fat mollifies strumous Swellings, cures Redness of the Eyes, clears them of Specks, and sharpens the Sight; it mitigates the Pain of the Gout. *Dale*. See ANGIUM SENECTA.

Snakes are not so venomous or terrible in *Italy*, and the colder Countries, as in warmer Climates. For a Remedy against their Bites, it will be sufficient to make use of Betony, Cantabrica, [Lavender-leav'd Bindweed, according to *Dale*] or Centaury, or Agrimony, or Germander, or Burdock, or Water-parsnips. One or two of these Simples bruised, the Juice drank in Wine, and the Herb apply'd to the Place, are enough to work a Cure.

We ought to know, that the Bites of all Serpents are most venomous, when they are hungry, and do most Harm when the Patient is fasting. Therefore these Creatures are most pernicious in the Time of their Incubation; and the best way, when you are under any Apprehensions of Danger from them, is not to stir out of your House upon an empty Stomach. *Celsus*, Lib. 5. Cap. 27.

Our Snakes are perfectly innocent, as is generally believ'd, and their Bite is not attended with any Danger; tho' they have sometimes been blam'd for the Mischief which Vipers have done, by Mistake.

ANGUIS ASCULAPII, *Johnston*,

Is the only Species of Serpent now known, which can be made so tame, as to do no Harm. It is found in many Parts of *Italy*, *Germany*, *Poland*, *Spain*, *Asia*, *Africa*, and *America*; it is of a gentle Nature, and People confide so much in its Gentleness, that they sometimes leave it in their Beds, where it is found, without Fear of being bit; it is full of volatile Salt and Oil; they prepare it in the same manner as the Vipers.

It is good against the Plague, resists Poison, and carries off Humours by Transpiration. *Lemery de Drogues*.

ANGIUM SENECTA. The cast Skin, or Slough, of a Serpent, boiled in Wine, and the Decoction instilled into the Ears, cures their Pains; and, used as a Collution, helps the Tooth-ach. It is also an Ingredient in Medicines for the Eyes, especially the Slough of the Viper. *Dioscorides*, Lib. 2. Cap. 19.

The Slough of a Snake, burnt and pulverized, then mixed with Oil, and reduced to the Consistence of Honey, is an admirable Remedy for the greatest Pain of the Teeth, if apply'd to them, and thrust into their Cavities; or rub the unsound and aching Teeth with the Slough itself not burnt, and they will fall out. *Aetius*, Tetr. 2. Serm. 4. Cap. 33.

ANGULI OCULI, *Kavoi*, the Corners of the Eyes. See CANTHUS.

ANGURIA, a Plant of the cucurbitaceous Kind. See CITRULLUS and CUCUMIS.

ANGUSTIA, in the common Sense, imports an Anxiety or Restlessness in Distempers; but ANGSTIA, or ANGSTATIO, also signifies a Narrowness of the Vessels, or Passages.

ANHALDINUM, an Epithet of a Corrosive described by *Hartman*, Praxis Chym. Tom. 1. *Castellus*.

ANHALTINA REMEDIA, Medicines which facilitate Respiration, such as vulnerary Plants, some Preparations of Sulphur, &c.

ANHALTINUS, an Epithet of a very rich and comforting medicinal Water and Spirit, describ'd in some old foreign Dispensatories.

ANHELATIO, ANHELITUS, ἄσθμα, a Shortness of Breath, or a difficult, and small, but quick Respiration, which happens to sound Persons, but especially to Valetudinarians, after vehement Exercise, getting up an Ascent, running or dancing. Fat Persons, with prominent Bellies, are much subject to this Disorder, which also happens after Repletions, especially with the cruder or flatulent Sorts of Aliment, whether the Patient be sitting or lying; and worse, if he be running, or getting up an Ascent; and worst of all, if it be in the Summer Season. In Fevers, Dropsy, Tumors of the Viscera, Pleurisy, Cardialgy [Heartburn], and Asthma, there is always an Anhelatio, or Shortness of Breath. See ASTHMA and ORTHOPNOEA.

ANHELITUS, with the Chymists, signifies Smoke, and sometimes Horse-dung. *Rulandus*.

ANHIMA.

Anhima, *Johnston*, is an Aquatic Bird of Prey, of *Brasil*, bigger than a Swan; its Head is no larger than a Cock's, and its Beak is black, and crooked near the Point; it has fine Eyes of the Colour of Gold, surrounded with a black Circle; the Ball of the Eye is black; on the Top of its Head, near the Root of the Beak, arises a Horn, as thick as one of the largest Strings of a Fiddle, and about the Length of two Inches, crooked at its Extremity, round, as white as a Bone, surrounded with small and very short Feathers, black and white;

its Neck is above seven Inches in Length, and its Body near a Foot and an half; the Wings are large, and of different Colours; its Tail is ten Inches long, and as large as that of a Goose; each Foot hath four Toes, armed with Claws; it has a strong Voice, crying *vihu, vihu*; they never find it alone; the Female is always accompanied with the Male; and when one of the two dies, the other presently follows. It is the Female that I am here describing, the Male is as big again. She makes her Nest with Dirt, in Form of an Oven, in the Trunks of Trees, upon the Ground.

The Horn of this Bird is esteemed a good Remedy to resist Poison, for Suffocation of the Matrix, and to provoke Labour; they infuse it for a Night, and next Day order the Infusion to be taken. *Lemery de Drogues*.

ANHUIBA. See SASSAFRAS.

ANIADA, the Term by which the Alchymists express what they call the Fruits and Powers of Paradise and Heaven; also the Christian Sacraments. In Physics it means the astral and celestial Powers; which, by Influence, Imagination, Estimation, and Phantasy, promote in us long Life. *Rulandus*.

ANIADAY, in the Jargon of the Alchymists, the eternal Spring, and the new World and Paradise to come. *Johnson*.

ANIADON, ANIADUM, ANIADUS, Terms in *Paracelsus*, signifying either the Efficacy and essential Forces of things, or the celestial Body planted in Christians by the Holy Spirit by means of the Sacraments, or the spiritual Man regenerated. *Castellus*.

These seem the same as Aniada and Aniaday.

ANICETON, Ἀνικιστον, Invincible, an Epithet of a Plaister ascribed to *Crito*, and so called, because it was an infallible Remedy for the Achores. It is thus described by *Galen*, de Comp. Pharm. Sec. Loc. L. 1. C. 8.

Take of Litharge, three hundred and twelve Drams; Rha, [a sort of Rhubarb] an hundred and four Drams (some put but fifty-two); of Cerufs, an hundred and four Drams; Frankincense, twenty-six Drams; plumous Alum, sixteen Drams forty Grains; Turpentine, twenty-six Drams; white Pepper, three Drams seven Grains; Oil, one Pint: Pound the dry Ingredients, but boil the Oil, Litharge, and Cerufs, in a new earthen Pot; and when they have received an Alteration, put in Wax and Rosin, and stir them about till it will no longer foul the Hands; then take it off the Fire, and when it is somewhat cooled, add the dry Ingredients, and beat them well together in a Mortar. Spread it on Linen, and shift the Plaister every third Day.

Another *Emplastrum Anicetum* describ'd by *Aetius*.

It is very much in Use; for it draws, breaks, cleanses, conglutinates, extracts Pus thro' the Bolster, and is used as a Collyrium. It dissolves Hardnesses, and helps contracted Nerves, if applied without Embrocation, that they might not be refrigerated. Being dissolved, it serves instead of an Ointment for Lascitudes, removing such as arise in the Beginning of a Disease, or from an obscure Cause. Apply'd on large Bolsters, it mollifies the extreme Parts. It is an Agglutinant of bleeding Wounds, after a Suture, or Imposition of Hooks; a folded Piece of Linen, moisten'd only with Vinegar, being laid upon the Compress, which must be cold in the Summer, and warm in the Winter. It is good for Soreness or Putridness of the Soles of the Feet, or Maladies of the Fingers, and for Wounds and Fractures; and you may safely rely on it for an Incarnative and Cicatrizer, without any other Medicine. It cures the Bites of Men, Dogs, and wild Beasts: But one extraordinary Effect it has, which is, to prevent any secret Abscess from forming in the Colon or Peritonæum, if there be yet no Suppuration; or, if there be one to attenuate it, and divert its Rupture upon the Intestines; but a Bolster must be laid upon the Place, and upon that a Lock of Wool, moisten'd with Vinegar or warm Oil; which Moistening must be renew'd twice in a Day, but the Plaister must not be removed till after three or four Days; and then, after fomenting the Place, laid on again. It takes its Name from its manifold and wonderful Effects, and is thus prepared:

Take of Squama *Æris*, fifty-eight Drams; Pellitory of *Spain*, Stavesacre, *Cnidium* Grains, Mustard-seed, Rosemary-seed, Pigeons Dung, long Birthwort, Verdegrise, *Cyprian* Mify, Rocket-seed, Cummin, each sixteen Drams; Nitre, Sal Ammoniac, each thirty-two Drams; Manna of Frankincense, Bay-berries, Orris, each one hundred and twenty Drams; of the strongest Vinegar, sixteen Pints; of a Decoction of dry'd Figs, half a Pint: Let five Pounds of fat dry'd Figs be boiled in six Pints of Water to one Third. Let all these, together with the Vinegar, be bruised and sifted, and then levigated in the Heat of the Dog-days. When the Medicine is grown dry, and looks green, pour upon it the Decoction of the dry'd Figs, and soften it, and then lay it up in a Box of red Copper.

When



When Occasion requires, mix one Part of this Medicine, diluted with Vinegar to a frumentitious Consistence, with six Parts of Wax and Colophony melted in a moderate Quantity of Oil. If you would have it harder, take four Parts to one of Wax and Colophony; if you like it softer, take eight to one of the same. It is said to be good for malignant Tetters, if used with little Mixture. *Actius, Tetr. 4. Serm. 3. Cap. 16.*

ANIDROS, ἀνιδρῶς, sweatless. From α Neg. and ἰδρῶς, to sweat. \*Ανιδρῶς πυρετὸς καὶ ἀκρίδης, in *Hippocr. de Rat. Viâ. in Morb. Acut.* signifies a Fever protracted to a great Length, without critical Sweats; because Nature has been disturbed by purging Medicines.

ANIDROSIS, ἀνιδρώσις, a Nullity or Privation of Sweat. *Hippocr. L. 7. Epidem.*

ANIDROTI, ἀνιδρωσί, an Adverb expounded by *Galen* in several Places of his *Comment.* upon *Hippocr.* and by *Hesychius*, to signify *without Sweat*.

ANIL. Anil, Garz. Acost. Nil, five Anil, Cam. Agnil, Fragofo. Coachira Indor. Annil five Indigo, Gali five Nil, herba rorimarini facie, Linsc. 4. Part. Ind. Orient. *Herba Anil*, five Enger, 4. Part. Ind. Orient.

It is a Plant of *Brasil*, about the Height of two Feet, resembling Rosemary; the Leaves are round, thick, the Flowers resembling those of Peas, and reddish; they are succeeded by long and crooked Pods, containing Seeds like those of a Radish, of an Olive-colour. All the Plant hath a bitter and pungent Taste: They extract from it Indigo. It is vulnerary, deterges and cleanses old Ulcers, being applied in Powder on the Part: It is used also as a Frontal for the Head-ach. *Lemery de Drogues.*

*Anil alia Species*, *Marcgrav. Coachira secunda*, *Pison. An Glasio affinis*, C. B.

It grows to the Height of two or more Feet; the Stalk is round, full of Joints, of a viscous, juicy, spongy, or Reed-like Substance. At the Joints of the Stalk and the Branches stand two Leaves, directly opposite, without Pedicles, of the Length of three or four Fingers Breadth, and narrow like the Leaves of yellow Willow-herb, green, and set with short white Hairs on both Superficies, feeling a little rough. At the same Joints where the Leaves are, on each Side, grow two Pedicles, near one another, standing upright, two or three Fingers Breadth long, and bearing at Top a round white Flower, of the Bigness of a Daisy, with small white Leaves, set round about with minute white Stamina. The Root is half a Foot long, or a little more, somewhat bent, with few Sprays, of a viscous and ligneous Substance, and cover'd with a Bark of a dark Colour, which may be stripp'd off. The whole Plant, with its Root, is full of Juice; and if any one breaks the Stalk or Root, there immediately issues a Juice of an azure Colour.

They make *Anil* of it, only by bruising the Herb, and pouring Water on it. They then leave it to subside; and after drawing off the Water, dry the Sediment in the Sun.

This Plant is of a quite different Kind from the other Anil, of which they make Indigo. *Raii Hist. Plant.*

The Plant Anil, the Method of extracting its œcuculent Parts, and the several Uses to which they are applied, have been so often, and so fully, insisted on by Physicians and Travelers, that we have no Occasion to enter upon these Points at present.

Since the Medicinal Uses of Anil in the *Indies* are unknown to us, because of the Scarcity of this Plant; and since the several Authors who have handed down their Accounts of it to us, differ from one another, not only with regard to its Description, but its Medicinal Virtues, we shall only mention such of its Properties as are most universally agreed upon by Botanists and Physicians. 'Tis then generally concluded, that a Decoction of its Root is good against a Nephritic Colic; that its Leaves, bruised and macerated in Water, are successfully applied to the Belly in Suppressions of Urine; and that, applied by way of Cataplasm, they assuage and mitigate Pains of the Head. *Mem. de l' Acad. A. 1718.*

ANIMAL. Every organiz'd Body endowed with Life, and spontaneous Motion, is call'd an Animal. Hence all Substances which are procured from Animals, are said to belong to the Animal Kingdom, in order to distinguish them from others, which belong to the Vegetable and Mineral Kingdoms.

The Earth of Animals is not found to differ from that of Vegetables in any respect; but the Salts of Animals differ remarkably from those of Vegetables, in being volatile; that is, in rising by the Force of Fire in Distillation; whereas those of most Vegetables, before they have undergone Putrefaction, are fixed, so as not to be capable of being elevated by the most intense Fire. See ANALYSIS.

The Oils of Animals also are different from those of Vegetables in many Particulars; which are specified in the following Observations of *Hoffman*, with respect to Animal Oils.

In all Bodies produced by the Earth there is a fat, oily, and inflammable Substance contain'd; but this Substance is not confined to these Bodies alone, for 'tis found in great Plenty in all Animals, of every Species; neither is it possible to find an Ani-

mal, that has not some Portion of Fat lodged in its internal Parts. In all their solid Parts also, in their Flesh, in their Bones, and even in their Fluids, duly dry'd, this inflammable Principle discovers itself; since they are very easily made to flame, and also yield a great Quantity of Oil in Distillation: But there is this Difference between Vegetable and Animal Oils, that the finer of the latter Sort are not, like the former, procured by a moist, but by a dry Distillation, that is, by Combustion; and for this Reason, all Animal Oils have an empyreumatic Smell, and strike the Nerves of the Nostrils in an ungrateful and disagreeable Manner.

Then again, all Fats and Oils, drawn from Animals, differ much in another respect from those of Vegetables; since the latter have a subtile Acid intimately mix'd with them; whereas the former contain, instead of that, a certain alkaline Principle. An Acid manifests and discovers itself in Oils express'd from Seeds and Fruits; since these Oils, by remaining any considerable time in Copper Vessels, extract a greenish Colour from them, which can only be done by an Acid; whereas the Fats of Animals, if kept for any time in Copper or Silver Vessels, assume a beautiful blue Colour, which Effect can only be produced by an alkaline Principle.

Besides, that the æthereal Oils of Vegetables contain a certain acid Salt, is plain from the following Experiment: Let Salt of Tartar be levigated very finely on a Marble; let some distill'd Oil, that of Juniper, for Instance, Turpentine, or even Lavender, be dropp'd into it; continue the Trituration for some Hours, till such time as the smallest oleous Particles are mixed with the lixivial Salt, and the Mass assumes the Form of a Pultis, without the Oil being any more discovered. This Mass is to be exposed to the free Air, upon the Marble, for a considerable time, till the Salt, becoming dry, is again render'd capable of being levigated; after which, let it be a second time impregnated with Oil. Let this Method be follow'd, till, at least, two Pounds of the Oil are absorb'd by one Pound of the Salt of Tartar. This Mass, when become dry, is to be dissolved in common Water; and, after Filtration, let the Water be drawn off; and then there remains a Salt of a neutral Nature, such as the *Arcanum Tartari*, or vitriolated Tartar.

Now there is no Doubt to be made, but this Acid, by means of which the Alkali was converted into a Substance of a neutral Nature, was originally contained in the Oil pour'd into it, since the Air alone could not possibly produce such an Effect; however, I don't deny but the universal Acid, contained in the Air, concurs, and has its proper Influence in this Affair.

That an Acid enters the Composition even of the finest Oils, is plain from an Experiment, in which is shewn, that the most highly rectified Spirit of Wine may, by the Addition of the most acid Oil of Vitriol, be converted into the most subtile and penetrating Oil.

But in the distilled Oils of Animals the Case is quite different; for they are richly impregnated with a volatile Salt, which may be drawn from them in great Plenty; and, which is more, the distill'd Oils of Animals, that of Hartshorn, for Instance, or Ivory, if long digested with a lixivial Salt, are themselves converted into volatile Salts.

The volatile alkaline Salt, therefore, contained in the Oils of Animals, is the Reason why they are far more subtile and penetrating than the distill'd Oils of Vegetables, and have a more immediate Tendency to put the Mass of Blood into a Commotion; for 'tis well known, that the most highly rectified Spirit of Wine quickly imbibes and resolves Oils extracted from Animal Substances, that of Ivory, for Instance, Worms, or Hartshorn; but yet in such a Manner, that a few Drops of these Oils not only tinge a great Quantity of this Spirit, but also communicate an adventitious Taste and Quality to it; for three or four Drops of these Oils are sufficient for tinging at least three Ounces of the Spirit of Wine with a brownish Colour.

Hence we plainly discover the subtile Nature, and the Smallness of the Parts, of these Oils, which entirely preserve their original Texture and Qualities; for two small Drops of the Oil of Hartshorn, intimately mix'd with half an Ounce of highly rectified Spirit of Wine, are sufficient to produce a copious and plentiful Sweat, if divided into four Doses, and exhibited to four different Men. Hence we learn, how cautious Physicians ought to be in prescribing these Oils, especially for young People, and in Distempers accompanied with intense and preternatural Heat: Hence we also discover the Reason, why Oils are so powerful and efficacious in dissolving and resolving Tumors, which will not yield to any other Medicines.

But what most of all deserves our Attention is, that all Oils, extracted from Animal Substances, may, by a frequent and reiterated Rectification, acquire such a Degree of Subtily as to be able, if exhibited in a pretty large Dose, to eradicate the most terrible and inveterate Disorders.

The Preparation is made thus:

Take any Oil distilled from Animal Substance, that of human Blood, for Instance, that of Worms, Ivory, or Hartshorn;



horn; and, without the Addition of any thing, let it be drawn off from a Glass Retort, and rectified to such a Degree, that no black and burnt Fœces may remain in the Bottom, which can scarce be obtain'd by twelve repeated Distillations.

This Oil, which was formerly thick, and of a disagreeable and fœtid Smell, gradually assumes a more grateful one, and becomes more pungent to the Taste.

Twenty or more Drops of such an Oil, taken on an empty Stomach, before the Access of an Intermitting Fever, bring on a calm and gentle Sleep, and wonderfully carry off feverish Disorders. This is also an efficacious Medicine for the Cure of Epilepsies of long Standing, and allaying convulsive Motions, especially when taken before the ordinary Time of the Access, and when such Medicines are previously used, are as proper for evacuating the too great Quantity of Humours.

It produces its Effects by its gentle, safe, anodyne, and somniferous Qualities; for it induces a calm and pleasant Sleep, which often lasts for twenty Hours, and which is so far from being followed by Drowsiness, Torpor, and Weakness, that it rather exhilarates and enlivens the Body. Besides, it promotes a gentle Sweat, without increasing the Heat of the Blood. The Effects produced by this Medicine are owing to the prodigious Smallness of its sulphureous Parts, occasioned by its frequent and reiterated Rectifications; and since its sulphureous Particles, in consequence of their Subtlety, penetrate all the smallest Meanders of the Parts, and diffuse themselves thro' the whole Mass of Humours, the Tensity and Elasticity of the *Dura Mater*, and of the whole nervous and membranous System, the depraved and preternatural spasmodic Motion of which is the very Essence and Cause of Intermitting Fevers, and Epileptic Motions, are by this Medicine so much changed and diminished, as afterwards to become unsusceptible of such spasmodic Motions.

By this chymical and practical Observation, we are taught, that uncommon Medicinal Virtues are treasured up in the minutest Particles of sulphureous and oily Substances; which Circumstance is owing to their reaching the inmost Recesses of the solid Parts, especially those of the Nerves and Membranes; upon the due Tone and Motion of which, almost all the Functions and Motions of our Bodies depend.

This Experiment, and practical Observation also, proves, that the hottest Medicine, and such as, when administer'd in a very small Dose, is sufficient to throw the whole Mass of Blood into a vastly quick Motion, may be render'd so mild and safe, that, when exhibited in a larger Dose, it shall be so very far from increasing the Motion of the Blood, that it will rather quell it, and induce a moderate Calm; and we plainly find, that this Circumstance is owing only to the Change produced in the Texture of the Medicine; that is, by rendering the tenacious viscid Oil as subtile as possible.

In fine, this Experiment explains and accounts for the anodyne and somniferous Qualities of Camphire, which is no more than a most subtile coagulated Oil, when used prudently, and as Exigencies require. *Hoffman. Observat. Physico-Chym. L. 1. C. 15.*

The rectified Oil, above describ'd, is certainly possess'd of many and considerable Virtues. Its Character is, that it is a most excellent Remedy against the Plague, or any pestilential Disorder: It cures the Pleurisy, it strongly fortifies Nature, it cheers the Heart, and revives the Spirits; it causes a free Circulation of the Blood, and thoroughly purifies the whole Mass, and clears the Skin from Erysipelas, Scurfs, and Scabs. It cures the Itch, scald Heads, Tetters, Ring-worms, &c. It is most powerful in the Cure of the Leprosy and Elephantiasis; it opens the Obstructions of the Liver and Spleen; it cures all the Disorders of the Head and Brain, as Lethargies, Apoplexies, Megrims, Vertigoes, Convulsions, Palsies, &c. It strengthens the Stomach, and helps Digestion; it surprisingly prevails in Faintings, Swoonings, and Palpitation of the Heart. A safer, speedier, better, or more effectual Medicine, is not to be found in the whole Art of Physic: Its Dose is from twenty to thirty Drops upon a Lump of Sugar, drinking after it a Glass of Wine.

**ANIMAL BEZOARTICUM Orientale.** The Bezoar Goat. See **BEZOAR**.

**ANIMAL BEZOARTICUM Occidentale.** The lesser American Deer. See **BEZOAR**.

**ANIMAL MOSCHIFERUM.** The Musk Animal. See **MOSCHUS**.

**ANIMAL ZIBETHICUM.** The Civet Cat. See **ZIBETHUM**.

**ANIMALCULA.** Those who have made the most minute Researches, and the most accurate Inquiries, into the Natures of the several Objects subjected to their Senses, have found, that the Substances upon which they employ'd their Curiosity, were often quite different from what, at first View, they appear'd to be. Thus, for Instance, the whole Earth has been found replenish'd with an inexhaustible Store of what we should least of all suspect, that is, an infinite Number of Animalcules float-

ing in the Air we breathe, sporting in the Fluids we drink, or adhering to the several Objects we see and handle. The Conjectures and Hypotheses relating to the Production, Generation, Structures, and Uses of these Animalcules, have been as various, and perhaps as far remote from Truth, as any that ever were either contrived by the Caprice, or embraced by the Credulity, of Mankind: But Conjecture, Obscurity, and Darkness, are now, in a great measure, banished from this Branch of Learning; since, by the Assistance of Microscopes, we not only know, that these Animalcules exist, but are also enabled to discover their particular Shapes, and various Degrees of Motion.

Water, the simplest and least compounded of any Fluid we are yet acquainted with, not only contains a large Number of these Animalcules, but also proves a proper Medium for their Multiplication.

This is confirmed by a Story told of a Gentleman, in the *History of the Royal Academy of Sciences for 1707*. who imagined, that, in some of the Experiments he had made, the Animalcules, discovered by a Microscope in Water, did not multiply in it, but that they proceeded from certain small and invisible Flies, which laid their Eggs in the Air; and that since these Animalcules were a Species of small Worms, they might naturally be supposed, as well as some other Worms, to proceed from some wing'd Species of Insect. But he was convinced of his Mistake by the following Experiment: He boiled Water and Dung, mixed together, and filled two equal Phials with it: When the Liquor, contain'd in these Phials, was become tepid, he put into one of them two small Drops of Water, taken from a Vessel, the Water of which was stored with Animalcules; and eight Days after he found that same Phial stock'd with an infinite Number of Animalcules, of the same Species with those contain'd in the Liquor, from which the two Drops of Water had been taken. As for the other Phial, nothing of the like Nature was discovered in it, tho' the Dung, as one would have thought, might have, in all Appearance, produced some Animalcules. Both Phials had been very carefully stopp'd. This Experiment, then, establishes the Multiplication of these Animalcules in the Water; but it will be more effectually confirm'd, if what this Philosopher asserts be true, that he saw them copulate. True it is, he saw them unite by Pairs, one may readily say, but it was perhaps to beat one another; but why should they never beat one another, except in Pairs?

If then Water, the most simple of all other Fluids, thus abounds in Animalcules, and proves, if I may so speak, a proper Medium for their Production and Multiplication, how much more must we suppose this to be the Case with other Fluids of a richer Texture, and a more compound Nature? What, for Instance, must we think of the vast Store, and surprising Variety, of Animalcules contained in that heterogeneous Fluid the Air? What Numbers of them must be contained in fermented Liquors, generous Wines, and Acids of every Kind? How must they abound in the Testicles, the Seed, and other Juices of Animals? What must their Number be in Fowls and Fishes, and even in Reptiles, and in Insects of the most small and inconsiderable Size? However romantic this may appear to one unaccustomed to pry into the hidden Wonders of the Works of Nature, 'tis nevertheless far from being one of those curious Hypotheses, which tantalize the Mind with delusive Appearances of Truth for a while, and leave it at last to sit down in a dejected State, and bewail its want of Evidence; for Mr. *Leuwenhoek*, that great Enricher of Natural History, and accurate Observer of the minutest Works of God, has subjected these Matters to the Evidence of Sense; and even given an irrefragable Demonstration that the Number of Animalcules contain'd in the Seed of one Cod-fish, is more than ten times that of all the Men living upon the whole Surface of our Globe.

In short, Animalcules abound so much in every Part of Nature, that the very Food we use is mix'd and incorporated with the Eggs laid by them. Thus Mr. *Homburg* (in the *History of the Royal Academy of Sciences for 1707*) acquaints us with the Case of a young Man of his Acquaintance, who enjoy'd a very good State of Health, and discharged every Day by Stool, for the Space of four or five Years, a great Number of Worms five or six Lines long, tho' he eat neither Fruit nor Salad, and us'd all the Medicines that could possibly be thought of, in order to perfect his Cure. He once or twice also discharged an Ell and a half of a flat knotted Worm, call'd by the *French, Solitaire*. From this he thinks we have Reason to conclude, that there are vast Stores of the Eggs of Insects mix'd with, and treasur'd up in, all those Aliments, where we least suspect them; and that nothing is wanting but a Stomach, or an Oven, as it were, to hatch them.

Our own Philosophical Transactions give very surprising Accounts of small Animals found in various Substances, and of different Sorts. Thus an anonymous Author takes notice of a very extraordinary Insect found amongst Sand.

As we examin'd, says he, with an excellent Microscope, some little Grains of Sand scarce'd, we perceived an Animal with many Feet, its Back white and scaly, but less than any of those hitherto observed. For altho' the Microscope shew'd



every Grain of Sand as big as an ordinary Nut, yet this Animal appeared no bigger than one of those Grains of Sand seen without a Microscope.

Mr. J. Harris also gives the following Account of Animalcula July 7. 1694: I examin'd a small Drop of Rain Water, that had stood in a Gally-pot in my Window for about two Months. I took it (with the Head of a small Pin) from the discolour'd Surface of the Water, and in it I observ'd four Sorts of Animals. In the clear Part of the Drop were two Kinds, and both very small. Some were of the Figure of Ants Eggs; these were in continual Motion, and that very swift: And I find, that this Kind of oval Figure is the most common to the Animalcula found in Liquors. The other Sort, that were in the Clear of the Drop, were much more oblong, about three times as long as broad: these were exceeding numerous, but their Motion was slow, in comparison of the former.

In the third Part of the Drop (for the Water, from whence I took it, had contracted a thickish Scum) I found also two Sorts of Animals, as a kind of Eels, like those in Vinegar, but much smaller, and with thin Extremes more sharp. These would wriggle out into the clear Part, and then suddenly betake themselves back again, and hide in the thick and muddy Part of the Drop, much like common Eels in the Water. I saw here also an Animal like a large Maggot, which would contract itself up into a spherical Figure, and then stretch itself out again: the End of its Tail appeared with a Forceps, like that of an Earwig; and I could plainly see it open and shut its Mouth, from whence Air-bubbles would frequently be discharged. Of these I could number about four or five, and they seemed to be busy with their Mouths, as if feeding.

These four Kinds of living Creatures I found afterwards also in many other Drops of the same corrupted Water; that is, in its Film, or Scum which was on the Surface. For under that, in the lower Parts of the Water, I could never find any Animals at all, unless when the Water was disturbed, and the Surface shaken down into, and mingled with, the lower Parts.

April 27. 1696. With a much better Microscope, I examined some Rain-water that stood uncover'd a pretty while, but had not contracted any such thick and discolour'd Scum, as that before-mentioned had. In this, where it was clear, I could not find any Animals at all: But a little, thin, white Scum, that, like Grease, began to appear on the Surface, I found to be a Congeries of exceeding small Animalcula of different Shapes and Sizes, much like those produced by steeping Barley in Water.

At the same time I look'd on a small Drop of the green Surface of some Puddle-water which stood in my Yard: This I found to be altogether composed of Animals of several Shapes and Magnitudes; but the most remarkable were those which I found gave the Water that green Colour, and were oval Creatures, whose middle Part were of a Grass-green, but each End clear and transparent. They would contract and dilate themselves, tumble over-and-over many times together, and then shoot away like Fishes: their Head was at their broadest End; for they still moved that Way. They were very numerous, but yet so large, that I could distinguish them very plainly, with a Glass that did not magnify very much. Among these were interspersed many other smaller and transparent Animals, like those mention'd but now, as found in the whitish Scum that was on some Rain-water which had stood a while uncovered.

April 29. 1769. I found another Sort of Creatures in the Water (some of which I had kept in a Window, in an open Glass); they were as large as three of the other, with a green Border about their Middles, but these were perfectly clear and colourless.

Then also examining more accurately the Belts, or Girdles, or Green, that were about the Animals mentioned above, I found them to be composed of Globules, so like the Rows or Spawn of Fish, that I could not but fancy they served for the same Use in these little Creatures. For I found now, since April 27. many of them without any thing at all of that green Belt or Girdle; others with it very much, and that unequally, diminished, and the Water filled with a vast Number of small Animals, which before I saw not there, and which I now look'd on as the young animated Fry, which the old ones had shed. I continued looking on them, at times, for two Days; during which Time, the Number of the old ones, with the green Girdles, decreased more and more, and at last I could not see one of them so encompass'd, but they were all clear and colourless from End to End.

May 18. 1696. I look'd on some of the Surface of Puddle-water, which was bluish, or, rather, of a changeable Colour, between Blue and Red; in a very small Drop of which I found prodigious Numbers of Animals, and of various Bignesses; but among those were none with those Girdles before-mentioned, either of Green or any other Colour.

I then also examined the Surface of some other Puddle-water, that look'd a little greenish; and this I found stock'd with such

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infinite Numbers of Animals, that I never saw the like anywhere, but in the Genitura Masculina of some Creatures. Among these there were very many of a greenish Colour; but they all moved so strangely swift, and were so near to each other, that tho' I tired my Eyes, I could not distinguish whether the green Colour were all over their Bodies, or whether it were only round their Middle in Girdles, as before. But from the Roundness of their Figure, and their Smallness, I judge that they chiefly consisted of the young animated Spawn of that Kind of Animals I mention'd above. I found, that the Point of a Pin dipp'd in Spittle would presently kill them all, as I suppose it will other Animalcula of this Sort.

The same Day also I looked on the Surface of some Mineral (Chalybeate) Water, which had stood in a Phial stopp'd for about three Weeks: in it I saw two Kinds of Animals, one exceeding small, and the other very large; which latter Sort had on the Tail something that looked like Fins. There were but very few of either Sort.

The compounded Salt, or Vitriol of the Water, was shot into pretty Figures, but all irregular. They looked all like a small Heap of little Sticks, laid across each other at all Angles and Positions; only they were transparent, and a little greenish, as Crystals of a chalybeate Nature use to be.

I infused whole Pepper-corns, Bay-berries, Oats, Barley, and Wheat, in Water, whose Scum, after two or three Days, afforded Animals, as hath been often already found by others, at least, as to some of them: But I found the greatest Numbers and Variety in Wheat and Barley Water, and the fewest in that wherein Bay-berries had been steeped.

How such vast Numbers of Animals can be thus (as it were, at Pleasure) produced, without having recourse to equivocal Generation, seems a very great Difficulty to account for. But though the solving of it that way makes short Work of the Matter, (for 'tis easy enough to say, they are bred there by Putrefaction) yet the asserting equivocal Generation seems to me to imply more Absurdities and Difficulties, than perhaps may appear at first Sight: I wish therefore, that this Matter would a while employ the Thoughts of some ingenious and inquisitive Man. In the mean time, I have conjectured, that these Animalcula may be produced by one or both of the following ways:

1. I have thought, that the Eggs of some exceeding small Insects, which are very numerous, may have been laid or lodged in the Plicæ, or Rugæ, of the Coats of the Grain, by some Kinds that inhabit on those Seeds, as their proper Places. For that Insects of the larger Kinds do frequently thus deposit their Eggs on the Flowers and Leaves of Plants, is often experimented; and 'tis very probable, that the smaller or microscopical Insects do the same. Now these being washed out of the Seeds, by their Immersion in Water, may rise to the Surface, and there be hatched into those Animals which we see so plentifully to abound there.

2. Or the Surface of the Water may receive the straggling Eggs of some microscopical Insects, that perhaps were about in the Air, and being fitted and prepared for this Purpose, by the Infusion of proper Grain, or a proportionable Degree of Heat, may compose so proper a Nidus for them, that they may by the Warmth of the Sun be easily hatched into living Creatures, which, it is probable, (like the strange Water-insect, from whence a Gnat is produced, mentioned by the learned Dr. Hook, in his *Micrographia*, whose Metamorphosis I have often with Pleasure seen) may afterwards turn into Flies, or winged Insects of the same Species of the Animal Parent. And, perhaps, sometimes, both these Circumstances, and other of the like Nature, concur for their Production.

#### Mr. Gray's Account of Animalcula.

I have observed in Hæmisphærules of Water, duly apply'd to the End of a Wire, two Sorts of microscopical Insects, globular and elliptical. Those of a globular Form are but little less transparent than the Water they swim in; they have sometimes two dark Spots diametrically opposite, but these are rarely seen; there are sometimes two of these globular Insects sticking together; where they are joined, 'tis opaque: possibly they may be in the Act of Generation. They have a twofold Motion, a swift progressive irregular one, and at the same time a Rotation on their Axes at Right Angles to the Diameter that has the dark Spots: But this is seen only when they move slowly. They are almost of an incredible Minuteness.

I have examined many transparent Fluids, as Water, Wine, Brandy, Vinegar, Beer, Spittle, Urine, &c. and do not remember to have found any of them without more or less of the Bodies of these Insects; but I have not seen any in Motion, except in common Water, that has stood for sometimes a longer, at others a shorter time, as has been observed by M. Læwen-hoeck; though I do not remember he has observed, that they are existent in the Water, before they revive. In the River, after the Water has been thickened by Rain, there are such infinite Numbers of them, that the Water seems in great part to owe its Opacity and Whiteness to these Globules. Rain-water,



water, so soon as it falls, has many; and Snow-water has more, of these Globules. The Dew, that stands on glass Windows, has them; and forasmuch as Rains and Dews are continually ascending or descending, I believe we may say, the Air is full of them. They seem to be of the same specific Gravity with the Water they swim in, the Dead remaining in all Parts of the Water. Of many Thousands that I have seen, I could discern no sensible Difference in their Diameters, they appearing of equal Bigness. In Water that has been boiled, they retain their Shapes, and will sometimes revive.

There is another Sort of Insects I have this way seen, but these are not so frequently (at least this Winter-season) to be found; they are much longer than the former; they can transform themselves into many Shapes; they are for the most part elliptical; but sometimes they contract themselves so as to be almost globular; and sometimes they contract themselves so, as to be twice or three times longer than broad; these sometimes turn themselves round on their Axes and Diameters as they go; they consist of transparent and opacous Parts. *Philos. Transf. Abr. Vol. 3.*

*Sir Edmund King's Observations of Animalcula.*

Having steep'd Oats in Rain-water some Days, (perhaps nine or ten) and looking upon it with my bare Eye, I saw a Substance, that seemed to me like that usually called a *Mother* (on other Liquors); and laying as much of it as a small Pin's Head upon the Object Plate of my best Microscope, I could very easily discern seven or eight Sorts of *Animalcula* of different Sizes and Shapes (or more) swimming in this Substance. Their Shapes and Sizes were after this manner, as near as I could guess: They were all very nimble in their Motions, by Computation, seven thousand times magnified.

The thin Scum upon a Pepper-water, that resembled Flakes of Salt upon some Sorts of human Urine, applied in the same manner to the Object Plate of the Microscope, was only Clusters of *Animalcula*, that had liquid Matter enough to swim in; and I was in Admiration at their Numbers, Motions, Variety, and Minuteness.

In a Decoction of Herbs, that was strained, and set by for a particular Use; in a little of the Settling of that, (as much as a Pin's Head) I saw Creatures like little Eels, which seemed to be sharp at both Ends, with a wriggling Motion.

I observe these small Creatures above-mentioned (if I may so call them) resemble the Nature of Fish, in several respects:

1. They'll flock together, and lie close together, as if they were in Shoals like Carps in a Pond, that has been shallow, as I have often seen, sometimes in one Place, sometimes in another; but when disturbed, they are, as to your Sight, all dispersed and lost in a trice; and so are these little Creatures in their original Liquor, if you shake the Liquor before you look to find them in Shoals, or after; at least, I am sure I did, and could never find any in that Parcel of Liquor, till next Day, or till they associated again.

2. They will follow their Liquor, to act in, to the last Particle of it, till they have no more to swim in, and then will seem to struggle for want of it, till their Strength fails them, and then after a Minute they will seem dead upon the Object Plate, when the watry Parts are dried away.

3. They will lie as if they were dead, near half an Hour, or more; then put a little Water to them, in half a Minute they will begin to move themselves again, and by Degrees begin to swim faintly and feebly at first (as Fish will do); then recovering their Strength again, will perform their brisk Motion as vigorously as ever.

4. Those that are almost dead, will look flat, as if pressed thin; but when they move, turn themselves over and over, without any regular Motion; so that you might see them as thin as the thinnest Spangle you ever saw, and like it in Shape; and they will continue so, so long as they are faint and sick: But within about an Hour's time, they will grow plump and well again, if you add fresh Liquor to them in time.

These *Animalcula* chuse, for the most part, the Top of the Liquor; I suppose, for the sake of the Air.

If you perceive them lie dead upon the Object Plate, as I did, and do not remember to add Water to revive them, within an Hour, they will be dead indeed: But you may see them in the Posture you left them, many Days after.

Now to give farther Testimony, that they are *Animalcula*, which some doubt, I have noted the following Observations:

If you take a fine Needle, and put the Point into Spirit of Vitriol, though you can see none of the Spirit with your bare Eye upon its Point when you take it out, yet if you prick the same Point of that Needle into the Middle of that Drop, no bigger than a small Pin's Head, when some Hundreds of these *Animalcula* are swimming, very nimbly frisking about, you shall immediately see these minute Creatures (if I may so call them) presently affected from the acid Particles, so as to spread themselves, and tumble down seemingly dead.

If you dissolve Salt, and, with the Point of the same Needle, repeat the Experiment (in the same manner) in some of the

same Liquor that contains some of the same Parcel of *Animalcula*, you shall see the Creatures afore-mentioned be affected too, stop in their Motion, but in another manner quite; not spread flat, as those with Spirit of Vitriol did, but shrink long and round, in Form and Figure of that we call whole Oatmeal, or an excoriated Oat. And whereas the first with the Spirit fell down flat without turning; these, as soon as affected, turn round, when they begin to be sick, and wabble, as we say, before they fall down to the Bottom and die, unless you quickly recover them with fresh Water, and then you will perceive them get a new Life by Degrees.

Tincture of Salt of Tartar, put into them in the same manner, kills them more immediately; but yet they will be first so sick, or so affected, call it what you please, as you may see by a surprising convulsive Motion, they will grow faint and languid apace, as you may see them fall to the Bottom of the Drop upon your Object Plate dead, but in their own Shape, as they were before you applied your Needle; and will neither be flat, as with Spirit of Vitriol, nor cylindrical, as with common salt Liquor.

Ink kills them as soon as Spirit of Vitriol, but makes them seem to shrink divers ways; I suppose by the Solution of Copperas, which is in its Composition.

Blood (newly pressed from a Prick purposely made in your Finger) kills them almost as soon as Spirit of Vitriol, by reason (I suppose) of the Salt therein: But it is a fine and surprising Sight, to observe them swimming and bustling, first among the Globules of the Blood jostling one another, like Fish that are suddenly deprived of Water, and bustle together amongst Mud; for so they appeared to me.

Urine kills them too, in a little time, tho' not so soon.

Sugar, dissolved like Salt, kills them also, if used in the same manner, and with that some die flat, and some die round.

Sack will kill them, but not so speedily as the other Liquors. *Phil. Transf. Abr. Vol. 3.*

*Animalcula in the Itch, by Dr. Bononio.*

I found an itchy Person, and asking him where he felt the greatest and most acute Itching, he pointed to a great many Pustules not scabbed over; of which picking out one with a very fine Needle, and squeezing from it a fine Water, I took out a very small white Globule, scarcely discernible. Observing that with a Microscope, I found it to be a very minute living Creature, in Shape resembling a Tortoise, of whitish a Colour, a little dark upon the Back, with thin and long Hairs, of nimble Motion, with six Feet, a sharp Head, with two little Horns at the End of the Snout.

Not satisfied with the first Discovery, I repeated the Search in several itchy Persons of different Age, Complexion and Sex, and at differing Seasons of the Year, and found in all the same Animals, and that in most of the watry Pustules; for now-and-then, in some few, I could not see any.

And though by reason of their Minuteness, and Colour the same with the Skin, 'tis hard to discern these Creatures upon the Surface of the Body; nevertheless I have sometimes seen them upon the Joints of the Fingers in the little Furrows of the *Cuticula*, where with their sharp Head they first begin to enter, and, by this gnawing and working in with their Body, they cause a troublesome Itching, till they are got quite under the *Cuticula*; and then 'tis easy to see, how they make ways from Place to Place by their biting and eating, one single one happening sometimes to make several Pustules, of which I have often found two or three together, and for the most part very near to one another.

I examined whether or no these *Animalcules* laid Eggs, and at last, from the hinder Part I saw drop a very small and scarcely visible white Egg, almost transparent, and oblong, like the Seed of a Pine-apple. I oftentimes found these Eggs afterwards, from which, no doubt, these Creatures are generated.

From this Discovery it may be no difficult matter to give a more rational Account of the Itch, than Authors have hitherto delivered; it being very probable, that this contagious Disease is no other than the continual Biting of these *Animalcules* in the Skin, by means of which some Portion of the Serum ousing out through the small Apertures of the Cutis, little watry Bladders are made, within which the Insects continuing to gnaw, the Infected are forced to scratch, and by Scratching increase the Mischief, and thus renew the troublesome Work, breaking not only the little Pustules, but the Skin too, and some little Blood-vessels, and so making Scabs, crusty Sores, and such-like filthy Symptoms.

From hence we come to understand how the Itch proves to be a Distemper so very catching, since these Creatures, by simple Contact, can easily pass from one Body to another, their Motion being wonderfully swift, and they as well crawling upon the Surface of the Body as under the *Cuticula*, being very apt to stick to every thing that touches them; and a very few of them being once lodged, they multiply apace by the Eggs which they lay. Neither is it any wonder, if this Infection be propagated by the means of Sheets, Towels, Handkerchiefs, Gloves,



Gloves, &c. used by itchy Persons; it being easy enough for some of these Creepers to be lodged in such things as those; and indeed I have observed, that they will live out of the Body two or three Days.

Nor shall we be at a Loss to know the Reason of the Cure of this Malady, by Lixivials, Washes, Baths, and Ointments made up with Salts, Sulphurs, Vitriols, Mercuries Simple, Precipitate or Sublimate, and such Sort of corrosive and penetrating Medicines; these being infallibly powerful to kill the Vermin lodged in the Cavities of the Skin, which Scratching will never do, partly by reason of their Hardness, and partly because they are so minute as scarcely to be found by the Nails. Neither do inward Medicines perform any real Service in this Case. And if in Practice we oftentimes experience, that this Disease, when we think it is quite cured by Uction, does nevertheless in a short time return again, this is not strange, since though the Ointment may have killed all the living Creatures, yet it may not probably have destroyed all their Eggs, laid, as it were, in the Nests of the Skin, from which they may afterwards breed again, and renew the Distemper. And upon this Account, 'tis very adviseable, after the Cure is once performed, still to continue the Anointing for a Day or two more; which it is the easier to do, because these Liniments may be made agreeable enough, and of a good Smell, as particularly is that compounded of the Ointment of Orange-flowers, or Roses, and a small Quantity of red Precipitate. *Phil. Transf. Abr. Vol. 4.*

*Leeuwenhoek* calculates, that a thousand Million of Animalcula, which are discovered in common Water, are not, altogether, so large as a common Grain of Sand. This Author, upon examining the Male Sperm of various Animals, discovered, in many, infinite Numbers of Animalcula, not larger than those above-mentioned. The white Matter also, which sticks to the Teeth, abounds with Animalcula of various Figures, to which Vinegar is fatal. And we have seen under the Article ACETUM, that Vinegar contains Animalcula in the Shape of Eels. In short, there is scarcely any thing which corrupts, without producing Animalcules; but I am not yet satisfy'd, that Animalcula are discoverable in any Animal Substance in Nature, which is not in a State of Putrefaction, notwithstanding what the Author above quoted has asserted. It is certain, that Animal Substances very soon incline to Putrefaction, and the Sperm the soonest of all others, that is, in a very few Minutes, or perhaps Moments. I would not from hence infer, that Animalcules are generated by Putrefaction; but I am inclined to think the Heat necessary to Putrefaction may hatch the Seeds of Animalcula deposited in various Substances thus putresc'd; and perhaps these Substances may afford them a convenient Medium to subsist in.

But as most Discoveries in Natural Philosophy have laid a Foundation for the warm Imaginations of some Men to build a lame Theory upon, to the great Prejudice of real Knowledge; so those relating to Animalcula have been drawn in, however improperly, to support the most whimsical and chimerical Systems.

Thus some have asserted, that the Animalcules found in the Sperm of Male Animals, were the future Animals in Miniature; and that by these Generation was perform'd. Others have attempted to prove, that all Diseases were produced by Animalcula, not considering that these, when found in the putrid Parts of Animals, were the Effects, and not the Causes of Distempers. Thus *Desault* has with much Labour endeavour'd to make it appear, that the Venereal Disease, and Hydrophobia, were caused by Animalcula; and I remember somewhere to have met with a Theory of the Plague, which makes that terrible Disorder produced by Insects brought by the East Wind.

ANIMALIS FACULTAS, *vel* VIRTUS. The Animal Faculty, or Power. See FACULTAS.

ANIMALIS MOTUS, Animal Motion.

ANIMALIS SPIRITUS, Animal Spirit. See SPIRITUS.

ANIMATIO, Animation; an enigmatical Word used by the Alchymists in the Affair of Transmutation of Metals, when the white foliated Earth is to be fermented with the philosophical or celestial Water of Sulphur. Mercury is said to be animated, when, by Conjunction with a perfect Metal, it is reduced to a certain Species. *Libav. Apoc. Hermet. Part. 1. Cap. 10.* Such a Mercury is wanted by the Spagirists to help them to the Philosopher's Stone. *Castellus.*

ANIME, *Anime gummi, Gummi Aminea, Serap. Minea, Galeni. Aminea, Myrrha, Cæf. Animum, Amato.*

Is a Gum, or white Resin, brought to us from *America*; it flows from an Incision made in a Tree, of a moderate Bigness, the Leaves of which are much like those of Myrtle; its Fruit is of a good Size, and called *Lobus*.

The best Gum Animé ought to be white, dry, friable, clean, of a good Smell, that soon consumes when thrown into the Fire: It contains a great deal of Oil, and essential Salt.

It is proper to discuss, to soften and dissipate cold Humours, for the Head-ach; to strengthen the Brain, they apply it to the

Top of the Head, and perfume Night-caps with it: It is also used for cleansing and cicatrizing Wounds. *Lemery de Drogues.*

Its principal Use in Medicine is external, in cold, painful; rheumatic, flatulent Affections of the Head, Nerves and Joints, Palsies, Contractions, Relaxations, Contusions, &c. It is an Ingredient in Plaisters and Celates for these Purposes. *Raii Hist. Plant. 1846.*

There are two Sorts of Gum Animé, the Oriental, and the Western.

The Western Animé is the Tear, or white Resin, of a Tree that grows in *New Spain*. It is somewhat inclining to the Colour of Frankincense, [pellucid, white, inclining to a Citron-colour] but more oleaginous than Copal. We have it imported in Grains like Frankincense, but they are bigger, and, if broken, appear of a yellow Colour like Rosin. It is of a most grateful and fragrant Smell; and, thrown upon hot Coals, is easily consumed. It differs from the Oriental, in that it is not so white or shining. The Oriental also is imported in great transparent Lumps.

The Oriental is of three Kinds; first, the white; secondly, the blackish, which is somewhat like Myrrh, sweet-scented, and reckoned, by *Dioscorides*, a bad Species of Myrrh. He calls it *Minæa*, from the Country where it principally grew. *Serapio* calls it *Aninæa*, which Word the *Portuguese* corrupted into *Animé*. A third Kind is added by *Clusius*, which is the pale, resinous, and very dry and scorched Sort. All the Kinds exhale a grateful Odour in Suffumigations.

*J. Bauhine* reckons up five Species of Gum Animé.

1. The Animé of the Colour of yellow Amber.
2. What is like Rosin, being of a White inclining to Yellow.
3. The white, pellucid Sort, of the Taste of Vernix, [the Gum of the Juniper-tree] and the Smell of Mastich.
4. What is of the Colour of Colophony.
5. The white Species, which the *Indians* call *Copal*.

*Raii Hist. Plant. See BDELLIUM.*

ANIMELLÆ. The Glandules seated under the Ears, and all along under the lower Jaw. They are otherwise called *Lactinia*. *Castellus* from *Vesalius*.

ANIMI & ANIMÆ DELIQUIUM. See DELIQUIUM, LIPOTHYMIA, and SYNCOPÉ.

ANIMI PATHEMATATA. Affections of the Mind.

ANIMUS, Νῆς, νόος, θυμὸς, γνῶμῆ, δίδωρα. The same as *Mens*, the MIND. It is usually taken, in a strict Sense, for that Power and Faculty of the human Soul, whereby it discerns, judges, and ratiocinates.

As there is a very strict Connection betwixt the Mind, or Soul, and the Body, insomuch that it is impossible, that one should be disturbed without Injury to the other, the following Observations, with respect to their Effects upon each other, will not be foreign to a Work of which Medicine is the Subject.

A laudable and temperate Blood, duly carried through the Vessels of the Brain, imparts Vigour and Strength to the Faculties of the Soul.

'Tis confirmed to us, by daily Experience, that Presence of Mind, Moderation of Passions, and even Brightness and Force of Genius, in a great measure depend upon the due and moderate Circulation of a laudable Blood thro' the Brain; for as soon as its Motion begins to grow impetuous, or too much accelerated, so soon a Propensity to Rashness, and Excess of Passion, lays a Foundation for Wrath and Discord: When its Motion becomes too quick, Madness is to be dreaded as the Consequence, as may be observed in Fevers. If the Quantity of the Blood is too small, Dread and Terror ensue; if it moves too slowly, a mournful and dejected State of Mind is the Result.

The various Inclinations and Propensities of our Minds, either to Virtue or Vice, depend very much on the Circulation of the Blood thro' the Head.

This accounts for the Affections of the Mind being influenced by the Temperament and Constitution of the Body; for we observe, that the Actions, commonly called *Animal*, are regulated, as it were, by the Motion of the Blood. Choleric People, whose Blood flows very rapidly, are exceeding prone to Rashness, Ambition, Factions, Seditions, Enmities, and Hatreds. People of sanguine Constitutions, whose Blood flows in a gentle, easy Stream, are inclined to Pleasures, Luxury, Ease, Lust, and all the other Means of gratifying the Senses. Those of phlegmatic Habits, whose Blood flows in a faint and languid Manner, are prone to Sloth, Laziness, Nastiness, Baseness, and a Turn for esteeming or valuing nothing. And those who have a Tincture of Melancholy in their Constitutions, and whose Blood moves very slow, are cowardly, jealous, and obstinate.

The Dispositions of our Minds, and the Operations of our Souls, receive a different Turn, and are variously modified, not only by the Quality and Motion, but also by the Quantity of our Blood.

As there is a wide Difference betwixt the Quantity and Effects of that Degree of Motion wherewith a small Body, and that



that whereby one larger, is moved ; so likewise, in the Animal Economy, a certain Degree of Force is impress'd on the Mind by the Circulation of a large Quantity of Blood, and a proportionably less, by the Circulation of a small Quantity of Blood. Thus we observe, that if a choleric Man abounds in Blood, all the Operations of his Mind are vehement, hot, and impetuous ; by which means his Vigour of Mind, his Courage, his Solidity, his Constancy, and his vehement and indefatigable Inclination to bring about his own Measures, are augmented ; all which are proportionably impair'd and lessen'd, by diminishing the Quantity of the Blood. In melancholic Constitutions, if a large Quantity of thick Blood is carried thro' the Membranes of the Brain, and their minutest Vessels, a great Steadiness or Composure of Ideas, sure and lasting Impressions of Objects, and uncommon Constancy and Resolution in acting, are the Result. When Persons of sanguine Constitutions abound in Blood, they are voluptuous, lustful, and fierce ; but if a scanty Portion of Blood flows in their Veins, they become cowardly, fluctuating, and inconstant.

As a large Quantity of thick Blood contributes to Strength of Body and Fortitude, so a small Quantity of thin Blood lays a Foundation for Cowardice, and is, as it were, the Instrument of a quick and lively Sensation.

The Sentiments of *Aristotle*, upon this Point, are excellent, when [*Lib. 2. De Partibus, Cap. 4.*] he talks in this Strain : “ Those Animals whose Blood abounds with many thick Fibres, are bold and furious ; for all solid Bodies, when heated, convey a strong Degree of Heat : Hence it is, that Bulls and Boars are courageous, wrathful and fierce ; for their Blood is replenish'd with Fibres.” The same venerable Author asserts, [*Lib. 2. De Partibus Animalium, Cap. 2.*] “ That a thick hot Blood contributes to Strength, but not to Understanding ; and that a thin Blood is better calculated for the several Purposes of Sensation and Understanding.”

Thus the Circulation of the Blood not only unites the Soul with the Body, but also governs and directs its Operations.

So long as the Circulation of the Blood is duly carried on, the vital and animal Functions are regularly and exactly performed ; or, in other Words, the Man perceives, sees, hears, thinks, and reasons : But as soon as the Circulation of the Blood is impaired, diminished, or quite stopp'd, so soon his Senses, and his Memory, the Force of his Imagination, and the Faculty of his Reason, are proportionably diminish'd, impair'd, or lost. Whoever is desirous, therefore, that his Soul and Body should long maintain their darling Union, and carry on their mutual Intercourse ; or that his Soul should perform her Operations with Ease, Delight, and Freedom ; ought to bend all his Thoughts, and direct his principal Care, to this one Point, the preserving sound and entire the Circulation of the Blood, and those vital Motions, which, as it were, influence and govern it ; which End is most effectually obtained by a proper Regimen, with regard to the Non-naturals. Whoever also is fond of that happy State, which is the genuine Result of a sound Mind in a healthy Body, must be at due Pains to preserve the Circulation of his Blood temperate, or in a due Medium ; for just and excellent is that Observation of *Hippocrates*, [*Lib. de Flatibus*] where he talks in this Strain : “ I am of Opinion, that nothing in the whole Body is more conducive to Wisdom than the Blood ; therefore, so long as it remains in a good and natural State, Wisdom and Prudence are not wanting ; but when the State of it is changed, Prudence shares its Fate, and vanishes. This is very observable in Persons that are drunk, where, by the sudden Increase of the Blood, the Mind itself, and its Prudence, receive, as it were, a sudden Shock ; and they become insensible of present Evils, and bless themselves in the flattering and delusive Prospect of future Good.” There is a very remarkable Passage, to this Purpose, in a certain Letter which *Democritus* wrote to *Hippocrates*, where he says, “ That the Understanding is increased by the Presence of Blood, of which those who think aright are bless'd with Store ; but when the Body is diseased, and the Mind void of sufficient Force to think on Virtue, the Disease darkens the Mind herself, and draws her Prudence into Consent.” *Hoffman's Medicin. Rational. Systemat. Vol. 1.*

There is so noble and sublime an Harmony and Consent between the Economy of the vital and animal Motions, that the least Defect in the Circulation of the Blood, forthwith produces a proportionable Alteration in the animal Functions ; as, on the other hand, a depraved Imagination not only influences, but even vitiates and spoils, the Functions of the whole Body.

This Truth might be illustrated and confirm'd by numberless Instances ; a few of which will well enough answer my present Purpose. Whenever the Motion of the Heart ceases, the Mind forthwith forbears to exert her several Operations, and all Reflection and Thought are at an End with her. A due Circulation of the Blood thro' the Brain maintains the Powers of the Soul, and the Force of the Genius, in their native Splendor and Vigour ; but as soon as this due Circulation is disturbed or changed, either by a Diminution or an Acceleration of Motion,

the Mind is forthwith disposed to inordinate Affections, and Deviations from the Laws of Reason : Hence it is, that the Dispositions and Propensions of the Mind depend upon the Temperament of the Body, or the due Circulation of the Blood thro' the Brain. The drinking Wine, or taking any other Substance, which can impart a brisk and lively Motion to the Blood, uses generally to brighten the Genius, and advance the Wit above its common Standard. Medicines which, by their ungrateful Steams, contaminate the Juices, such as Narcotics, impair and sometimes quite destroy, the Reason, the Memory, the Genius, and all the Senses. How great the Influence of a depraved and ill-governed Fancy is, in changing the Motions of the Parts, may be proved from the vehement Passions of the Mind, the obstinate Fancies of melancholy People, and all the disquieting and uneasy Train of unreasonableness and ill-grounded Desires and Aversions. *Hoffman. Medicin. Rational. Systemat. Vol. 1.*

The Passions and Affections of the Mind plainly prove, that the nervous Fluid, when ill-disposed, or put into a preternatural Commotion, induces a Change upon the Tone, the Elasticity, and the Strength of the Parts.

Thus we observe, that Fear or Terror contract and compress the external Parts so strongly, that the Blood is forced from the Circumference to the large internal Vessels about the Heart and Lungs ; which sufficiently accounts for the Palpitation of the Heart, the Uneasiness in the Bowels, and the Cold in the extreme Parts, which are found in People upon such Occasions. By Sadness the Influx of the nervous Fluid is considerably intercepted ; hence almost all the Parts of the Body lose their Tone and Strength, and a great Disposition to chronical Disorders ensues. Besides, Disorders, that are otherwise benign and gentle, easily acquire a dangerous Malignity, by reason of the Loss of Strength. The Passion of Anger, by putting the nervous Fluid into a violent Commotion, occasions a strong Stricture in all the nervous System : Hence the Pulse and Breathing become quick, the natural Heat is increased, and Men are at that time possess'd of most Strength and Vigour. *Hoffman. Medicin. Rational. System. Vol. 1.*

Since the Blood and its Motion have, by means of the Fluid of the Brain, such an Influence on the Operations of the sensitive Soul, it must of course follow, that all such Things as are possess'd of a Power of altering the Quality or Motion of the Blood, must have a proportionable Influence on the Mind.

We are not therefore to be surpris'd, if particular Climates, Regimens, or Medicines, are capable of inducing a Change in our Minds, Dispositions, and Understandings ; for *Hippocrates* has very justly maintained, [*Lib. 1. de Diet.*] that the Mind may be improved and rendered wiser by Diet ; and in the same Book he asserts, that if the Body be sound, and free from Diseases, the Frame and State of the Mind must, in Consequence of that, be bless'd with Wisdom ; and that the Temperament of the Blood conduces much to Wisdom, is likewise asserted by the same Author. Besides, Experience teaches us, that, among the People of different Climates, some are acute, others dull ; some excel their Neighbours in Force of Genius, and Reach of Thought ; and others are addicted to various Vices, almost unknown to People of other Climates. It is also confirmed by Experience, that rich and generous Wine renders Men chearful and witty ; whereas flatulent Substances, such as Peas and Beans, and also foetid Substances, such as Opium, and Henbane-seeds, render Men dull and mad ; and 'tis well known to every Physician of Skill or Experience, that ardent Fevers produce Deliriums, and the Flatulencies of hypochondriac Persons Melancholy, and even Madness. *Hoffman. Medic. Rational. System. Vol. 1.*

The Power of Fancy exerts itself also very strongly in changing the natural Actions. How pernicious to the Foetus the fantastical, sudden, and strong Impressions of Women with Child are, especially when accompanied with any Degree of Fear, is sufficiently proved from the Deformity of the Parts, the Marks and Spots left upon their Bodies ; and how destructive of Health all vehement Desires are, is abundantly shewn from the Effects of a furious and distracted Love, the Longings of Women during Gestation, and the intense Desire of seeing one's native Country, and Relations. The Loathings, excited either by the Smell or Sight of ungrateful and disagreeable Substances, so disorder the Stomach, as to produce painful and uneasy Vomittings. Daily Experience shews us, what violent Commotions are raised through the whole Body by the innate Aversion to Cheese, Cats, Effusion of Blood, or other disagreeable Objects. Profound Meditation, and strong Application of Mind, weaken the whole Body, and the Stomach itself. We likewise observe, that they so contract, or sometimes relax, the Membranes of the Brain, as to prove the fruitful Sources of some very terrible Disorders of the Head. Accounts of Physicians, every-where to be met with, inform us, that on the bare Sight of epileptic People, or such as have the Small-pox, many have fallen into these very Distempers. Nothing is more certain, than that some People, from the very Dread of the Plague, have been seiz'd with it, even tho' it did not rage in the Country where they lived ;



lived; and Experience has several times convinced us, that some have been purged, vomited, sweated, and even salivated, by pure Force of Imagination. These Accidents principally happen to delicate Constitutions, or such as have been previously weaken'd and enervated by the Shocks of some Distemper, or by some other Cause.

Hence it follows, that the more disengaged and calm the State of the Mind is, the less it disturbs and injures the Motions of the Body, the Operation of Medicines, and the salutary Effects of Aliments; and, for this very Reason, the Philosophers of all Ages, and all Countries, have, with one Voice, recommended Tranquillity of Mind, as the best and most effectual Means of lengthening our Life, and preserving the Constitution sound and vigorous. *Hoffman. Medicin. Rational. Systemat. Vol. 1.*

The Female Sex, as daily Experience shews us, suffer generally very much by the menstrual Discharge being either disturb'd or obstructed; but enjoy a good State of Health when this useful and necessary Evacuation is duly and regularly carried on.

For this Reason a Physician ought to make it his principal Care to promote this Discharge in sufficient Quantities, and at due and proper Seasons: But nothing is more fatal to the due Excretion of this Recrement than violent Commotions of Mind, and more especially an Excess of Dread and Terror, the Influence of which is often powerful enough to put an immediate Stop to the Discharge, when going on in a natural, undisturb'd, and easy Manner. *Hoffman. Medicin. Ration. Systemat. Vol. 1.*

As a further Confirmation of the general Doctrine here laid down by *Hoffman*, I cannot help mentioning the real, tho' scarce credible, Case of a young Lady, "who, from her natural Turn, or the Strictness of her Education, had become a remarkable *Devotee*. Her Disease, for such it was, at last degenerated into that most fatal of all Calamities, a religious *Melancholy*. Her false Apprehensions of the Supreme Being, and the Measures of his Administration, filled her Mind with all the black and ghastly Ideas of Gloom and Terror: Upon this, such a Suppression of her Menstrues ensued, as would yield to no *Emmenagogue*, even the most efficacious and best chosen. This unlucky Circumstance was attended with such fatal Consequences to her Health, that Life itself became a Burden, rather than a Blessing. During this disconsolate and deplorable State, she happily got acquainted with a Clergyman of a free and rational Turn of Thought, who, partly by the Graces of his Person, which sometimes are very effectual in convincing, and partly by the Strength of his Arguments, banish'd her religious Horrors, convinced her of the amiable Character of her Maker, reconciled her to Life, and reduced her clouded Mind to an easy and comfortable State: Upon this her Menstrues began to flow regularly, and in a due Quantity; she resumed her fresh Complexion, and her former Sprightliness returned. Her Regimen and Diet, in the mean time, were the same in both these so opposite States. But as the Diseases of the Mind, as well as those of the Body, are apt to recur on certain Occasions, so this Lady had a Relapse; her former State of Mind return'd, and brought along with it the same Disorder, with all its concomitant Train of Symptoms: She got cured a second time, by Means of the same Nature; upon which her Menstrues, together with her Health, return'd. In short, her Life, for some Years, was a Scene diversify'd with various Intervals of Superstition, and rational Religion: When she was under the direful Influences of the former, her Menstrues were obstructed, and her Health sensibly impair'd; but when under the benign Influences of the latter, her Menstrues flow'd regularly, and the State of her Health was good."

This, in my Opinion, is an Argument hitherto not insisted on, why young Ladies should be taught early to divest themselves of those unreasonable Fears, and gloomy Prejudices, which those who have the Care of their Education in their tender Years too frequently instil into them; for what is the Case with one of the Sex, may possibly be so with another. By this I do not mean to encourage that indecent and unpolite Scoffing at Things sacred, which has of late become too fashionable among the gayer Part of the World; but only to strip the Mind of those dark and narrow Notions, which represent God and Religion in a gloomy and disadvantageous Point of Light. The Physicians of the Platonic Sect were so sensible of the happy Influences even of natural Religion upon Health, that they used only a few simple Remedies, and ply'd their Patients with moral Precepts, and Arguments against Bigotry and Superstition, Enthusiasm, and ill-founded Horrors of the religious Kind.

This is so singular a Case, that I could not forbear inserting it as a Confirmation of *Hoffman's* Sentiments, with regard to the Influence of the Passions on the menstrual Evacuations of Women. The Account is Part of a Letter from a Gentleman, who has both Knowledge enough to represent the Case as it really was, and Candour enough to say nothing but what he knows to be true.

The following Case will farther illustrate the Effects of the Mind upon the Body:

A Musician, who was a Connoisseur in his Art, and famed for his Compositions, was seiz'd with a Fever, which, gradually augmenting, became at last of the continued Kind, and was accompanied with terrible Paroxysms. On the seventh Day he fell into a very violent and almost uninterrupted Delirium, accompanied with Shrieks, Tears, Horrors, and a perpetual Want of Sleep. On the third Day of his Delirium one of those natural Instincts, which are commonly said to prompt Animals, when in Distress, to seek for those Herbs that are proper for their Case, made him desire to hear a small Concert in his Chamber. His Physician did not consent to the Proposal without some Reluctance. The thing, however, being agreed to, the *Cantatas* of Mr. *Bernier* were sung to him: No sooner had the soft melodious Strain touched him, than his Countenance assumed an Air of Sweetness and Serenity, his Eyes became calm, his Convulsions ceased entirely, he shed Tears of Joy, and was more affected with that particular Music than ever he had been with any before his Disorder, or has been with any he has heard since his Cure. He was free from the Fever whilst the Concert lasted, but, when it was at an End, relapsed into his former State. The Use of a Remedy, whose Success had been at once so happy and unexpected, was continued; the Fever and Delirium were always suspended during the Concert; and Music was become so necessary to the Patient, that in the Night-time he made a Relation of his own, who sometimes attended him, sing, and even dance, to him: This Relation, being pretty much afflicted, paid him such Pieces of Complaisance with a Kind of Reluctance. One Night in particular, when he had but his Nurse along with him, who could only blunder out the harsh and unharmonious Notes of some Country Ballad, he was obliged to put up with her Music, and even felt some Effects from it. A Continuation of the Music for ten Days cured him entirely, without the Assistance of any other Remedy, except once letting Blood from his Ankle, which was the second time that Operation had been perform'd on him during his Disorder, and which was follow'd with a very liberal Evacuation. Mr. *Dodart* acquaints us with this Case, which he says is a genuine one, but does not pretend, that it is to be set up as a Model or Standard in Cases of a like Nature. But 'tis worth while to observe, how effectually Concerts restored the Spirits, by little and little, to their natural Course in this Patient; in whom Music, by a long and protracted Habit, had become the very Soul. 'Tis not, however, probable, that a Painter should be cured by viewing the exquisite and masterly Touches of his Neighbour Artist in a Piece of Painting; since Performances in that way are not found to have the same Influences on the Spirits with Music: Neither, indeed, can the Productions of any other Art come up to it in this Particular. *Hist. de l'Acad. 1707.*

ANINGA-IBA Pisonis et Marcgr. *Arbor Brasiliensis aquatica, folio Nymphææ, fructu reticulato, pulpa alba humida.*

It grows in the Water to the Height of five or six Feet, with no more than one brittle Stem, which is divided by a sort of Joints, and is of an Ash-colour like the Walnuts; on its Top are large, thick, smooth Leaves, of a cheerful Green, shaped almost like the Leaves of Water-lily, or Sagittalis, [Arrow-head] and remarkably conspicuous for their stout main Rib, and Fibres that run off transversely from it; each Leaf is supported by a juicy Pedicle, above a Foot long; between the Leaves shoots forth one large, concave Flower, consisting of a single incarnated Leaf, of a pale-yellow Colour, with a thick yellow Style in the Centre, which is succeeded by a Catkin, that grows to be a Fruit, of the Shape, and about the Size, of an Ostrich's Egg, green, and full of a white moist Pulp, which, matured and dry'd, becomes of a farinaceous Savour, and in a time of Famine is eaten, but is dangerous, if taken to Excess; because by its Coldness and Flatulency, like Mushrooms, it threatens Suffocation.

The Wood of those that are grown to the Bigness of a Tree is used for various mechanical Purposes; for the Trunk, being light, tenacious, and of a corky Substance, is what is most used by the Natives, and the Negroes, to make their *Jangada's*, which are Rafts consisting of three Pieces of Wood join'd together for the hasty passing of Rivers; but the Medicinal Virtue consists in the bulbous Root, as specify'd below. *Rail Hist. Plant.*

ANINGA simpliciter dicta, seu J. Pisonis,

Grows in the same Place, and to the same Height, as the former. It has also one Stem, but which soon runs out into various, thick, soft, and reedy Branches, like the Plantain-tree, from every one of which grows out a very large oblong Leaf, conspicuous for its Veins here-and-there interpersted. It has only one large white Flower, which produces an extraordinary Fruit, first green, then ash-coloured inclining to yellow, of an oblong Figure, thick, compact, marked over with a sort of Grains and Points. The Natives eat it for what of better Aliment.



Both Amegas have a thick, bulbous Root, which is of more Use in Medicine than the Leaves or Fruit; for being of fine Parts, and a Decobstruent, it is apply'd to various Uses by the *Portuguese*, and the Natives. It is used in Fomentations against Inflammations and Obstructions of the Reins and Hypochondria. The expressed Oil is accounted excellent in the same Disorders, and supplies the want of Oil of Water-lily, or of Capers. A hot Bath, made of the Decoction of the Root in Urine, and several times renewed, affords the highest Relief under the Gout, whether recent or inveterate. *Raii Hist.*

ANINGA PERI. *Pison.*

A shrubby Plant, which grows plentifully in the thick Woods, and bears a small whitish Flower, which is succeeded by a few Grapes resembling Elder-berries, but of an azure Colour, inclining to black. The Leaves are downy, of an oval Figure, of a sad green Colour, but very pleasing to the Sight, soft to the Touch, feeling like Dead-nettle, and distinguish'd by numerous and thick Fibres.

The fresh Leaves bruised, or pulverized, cure both recent and inveterate Ulcers by the first Intention. *Raii Hist. Plant.*

ANISCALPTOR, from *Anus*, the Breech, and *Scalpo*, to scratch; that very broad Muscle, which, with its Fellow, covers almost the whole Back; so call'd, because it is in Use when that Office is perform'd. See LATISSIMUS DORSI.

ANISOS, *ἄνισος*, from *a* Neg. and *ἴσος*, equal; unequal.

ANISOSTHENES, *ἄνισοσθενής*, from *a* Neg. *ἴσος*, equal, and *σθένος*, Strength; unequal in Strength.

ANISOTACHYS, *ἄνισοταχὺς*, from *a* Neg. *ἴσος*, equal, and *ταχὺς*, swift; unequal in Celerity, an Epithet of the Pulse.

ANISUM, a Plant thus distinguish'd:

*Anisum*, Offic. Ger. 880. Emac. 1035. Park. Theat. 911. *Raii Hist.* 1. 450. *Anisum veteribus*, J. B. 3. 92. *Anisum vel Anisum*, Chab. 396. *Anisum Herbariis*, C. B. Pin. 159. *Anisum vulgare*, Mor. Umb. 25. Buxb. 21. *Anisum officinarum*, Rupp. Flor. Jen. 229. *Anisum vulgatum minus annuum*, Hist. Oxon. 3. 297. *Apium Anisum dictum, semine suaveolente*, Tourn. Inst. 305. Boerh. Ind. A. 59. ANISE. *Dale.*

Anise, in general, is of a heating and drying Quality, makes the Breath sweet, is an Anodyne, Diaphoretic, Diuretic, and Discutient. Being drank, it restrains Thirst in a Dropsy, is good against the Poisons of venomous Creatures, and Inflammations; it stops a Looseness, and the Fluor albus; draws Milk to the Breasts, and stimulates to Venery. The Fume received up the Nostrils eases the Pain of the Head. The Powder, mixed with Oil of Roses, and distilled, cures Ruptures in the Ears.

The best Seed is what is fresh, full, free from Mouldiness, and has a very strong Smell. The Anise of *Crete* is accounted the best of the Kind; and next to that the *Egyptian*. *Dioscorides*, Lib. 3. Cap. 65.

Anise, drank in Wine, is good against the Venom of Scorpions. It is one of those Simples which are most highly commended by *Pythagoras*, whether raw, or in Decoction. Green or dry it is an usual Ingredient in all Pickles and Sauces, and is put in the lower Crusts of Loaves, and in medicated Bags. It is used with bitter Almonds to add a Briskness to Wine. Eaten in the Morning with Alexanders and a little Honey, and washed down with a Draught of Wine, it takes off a stinking Breath, and makes the Countenance youthful. Put in a Pillow, so that it may be smelted, it relieves a Person under want of Sleep. It gives an Appetite to Food; for Luxury, among other Inventions, has found out a Method to render Labour unnecessary for procuring a good Stomach. For these Virtues some have called it *Anicetum* [insuperable]. It serves instead of Ligusticum [Lavage] in Pickles. *Johannes* applies its Root bruised in Wine to sore Eyes afflicted with Rheums: He also uses Anise bruised with Wine and Saffron, or bruised alone, and made into a Pultis, for great Defluxions on the Eyes, or to extract any thing that may have fallen into them. Used with Water, it consumes the Polypus in the Nose; mixed with Honey and Hyssop, and gargarized with Vinegar, it allwages the Quinsy; being roasted, it expectorates Phlegm, and the more effectually, if it be mixed with Honey; with half a quarter of a Pint of Anise bruise fifty bitter Almonds cleansed in Honey, for a Cough. A very easy Prescription is, to

Take three Drams seven Grains of Anise, and two Drams five Grains of Poppy; mix them with Honey to the Size of a Bean, and take one for three Days together.

It is particularly serviceable in Eructations, and therefore cures Inflammations of the Stomach, the Gripes, and the Colic. Being smelted to, or the Decoction of it drank, it represses the Hiccups. A Decoction of the Leaves digests Crudities; the Smell of the Decoction, with Smallage, stops Sneezing; being drank, it procures Sleep, represses Vomiting, and Tumors of the Pæcordia, and is very useful in Disorders of the Breast and Nerves: There is nothing thought more friendly to the Belly

and Intestines; wherefore it is given roasted in the Dysentery and Tenesmus: Some add Opium, and prescribe three Pills of it in a Day, of the Size of a Lupine, diluted in a Glass of Wine. *Diaches* gave the Juice of it for Pains in the Loins; and the Seed, bruised with Mint in Wine, to Persons afflicted with the Dropsy or Colic; and the Root in Diseases of the Kidneys. *Dalian*, the Botanist, apply'd a Cataplasm of this Herb and Smallage to Women in Labour, and for Pains in the Pudenda; and order'd it also to be drank with Dill in the Time of their Labour. In a Phrensy they rub the Patient with the green Herb and Polenta, and treat Infants under an Epilepsy or Convulsions after the same manner. *Pythagoras* affirms it impossible for one to be seized with a Fit of the Epilepsy, while this Herb is held in the Hand; that therefore it ought to be very much cultivated in the Gardens of such as are liable to this Distemper; and that the Smell of it facilitates the Birth; and advises, that the Woman should drink it mix'd with Polenta, immediately after Delivery. *Sosimenes* used it with Vinegar for all Hardnesses, and also for Lassitudes; for which last Purpose he boiled it in Oil, and added Nitre. The Seed, drank, infallibly relieves the Traveller under Lassitude. *Heraclides* prescrib'd as much of the Seed as may be taken up with the Thumb and two Fingers, and eighteen Grains of Castor, to be taken in Mulsum, for Inflammations of the Stomach. In the same manner is it given in Inflammations of the Belly and Intestines. For the Orthopnoea (a kind of Asthma) the same Quantity of Seed is given, with as much Seed of Henbane, in Ass's Milk. Many will advise half a quarter of a Pint of its Seed, with ten Bay-leaves bruised in Water, to be taken at Supper, by those who are inclin'd to vomit; eaten, and anointed warm, or drank with Castor in Oxymel, it appeaseth the Strangulation of the Uterus. Taken with the Seed of Cowcumbers and Linseed, each as much as may be grasped with three Fingers in a quarter of a Pint of White-wine, it cures the Vertigo that comes after Childbirth. *Ptolemaeus* used the same Measure of the Seed, with the like of Fennel-seed, in Vinegar and a Glass of Honey, for a Quartan. It eases the Pains of the Gout, if the Place be anointed with it, and bitter Almonds. Taken in Wine, it gently promotes Sweat; it also preserves Garments from the Moths.

The newest and blackest is the best. It is not proper for the Stomach, except in case of Inflammations. *Pliny*, L. 20. C. 17.

It is a small tender Plant, producing one Stalk, seldom arising above two Feet high, whose lower Leaves are whole, round, and indented about the Edges; but those which grow upon the Stalk, are winged, and finely divided, of a pale green Colour; the Top is branch'd into several Umbels of small white Flowers, which are succeeded by round longish Seeds, swelling toward the Bottom, and ending in a bluntish Point of a greenish Colour, which are of a pleasant Smell, and of an hot but very sweet Taste. It flowers and seeds in *July*, the Root dying every Year, after it has yielded Seed. It is cultivated in *Germany*; but the best Seed, which is a smaller Sort, comes from *Spain*. The Seed only is used, being one of the four greater hot Seeds.

Aniseed is Carminative, expelling Wind out of the Stomach and Bowels, both given at the Mouth, and in Clysters. It is frequently put into Childrens Victuals, for the Gripes and Wind. It is very useful against cold Affections of the Lungs, Difficulty of Breathing, and Asthma. Some commend it much to be taken frequently by Nurses to increase their Milk. It is often used as a Corrector of the stronger purgative Medicines. The Oil, distilled from the Seed, is used for the same Purposes, and often applied outwardly in Carminative and Anodyne Liniments, and particularly for the Pleurisy, and other Pains in the Side.

Official Preparations are only the Chymical Oil distilled from the Seed. *Miller's Bot. Off.*

The Moderns have added nothing to the Virtues specify'd by the Antients, except that it is a Corrector of Scammony.

For the Method of making Oil of Anise, see OLEUM.

ANISUM CHINÆ. See ZINGI.

ANISATUM, an artificial Wine, prepared of ten Pints of Honey, thirty Pints of Wine of *Ascalon*, (a maritime City of Syria) and five Ounces of Aniseeds. *Oribas. Med. Coll. Lib. 5. Cap. 33.*

ANNETESTES. The *Galenists* so call'd by *Paracelsus*, *Frag. de Morb. Gall.* by way of Derision, as ignorant and blind with respect to the Principles and Causes of things. *Castellus*.

ANNORA, calcin'd Egg-shells, or Quick-lime. *Rul. and Johnf.*

ANNOTATIO, the very Beginning of a febrile Paroxysm, when the Patients use to shiver, to be refrigerated, to yawn, stretch, and be drowsy, &c. *Gal. 2. Aph. 1.* It is also called *ἐπιμασία*, and *εὐπορη παρὰ τοῦ πυρετοῦ*, the Attack of the Paroxysm.

There is another *Annotatio* or *Epismania*, which is proper to Hectic Fevers, and happens when the Patient, an Hour or two after



after eating, feels an Increase of Heat, with a swifter and fuller Pulse than before, but without a Shivering, Refrigeration, or any of the forementioned Symptoms. Hence it is called by *Gal. Lib. de Diff. Feb. Cap. 9.* ἐμπροσθεν ἀθλῆσι, an inoppressive *Annotatio. Castellus.*

ANNUENTES MUSCULI, the same as *Recti Interni minores*, which see.

ANNUITIO. So *Pliny* calls the Motion of the Head forward.

ANNULARIS CARTILAGO, the Ring-like Cartilage or Gristle at the Head of the Larynx. See *CRICOIDES*.

ANNULARIS DIGITUS, the Ring-finger, or fourth Finger of the Hand.

ANNULARIS VENA, the Vein between the Ring-finger and the little Finger, which *Actius* advises to be open'd in Affections of the Spleen. *Actius, Tetrab. 1. Serm. 3. Cap. 12.*

ANNULUS, Δακτυλίδιον, κέικον. A Ring. *Quercetan de Med. Hermet.* and from him *Libavius*, mention a purging Ring prepared of Glass of Antimony. You find also in *Trallian*, and *Murcellus Empiricus*, several superstitious Rings recommended to be worn as Amulets against the Colic and Epilepsy. *Scultetus*, in his *Armament. Chirurg.* gives us the Descriptions and Figures of several Chirurgical Rings; and *Zecchius de Morb. Gallic.* writes, that a Gold Ring held in the Mouth extracts Quicksilver out of the Body.

ANNUS, ἔτος, ἐνιαυτός, the Year. The Antients divided the Year into *Summer* and *Winter*, as *Lind. Ex. 11. Sect. 196.* demonstrates out of *Theophrastus*; but those who came after them made a new Division of it into four Quarters, by adding *Spring* and *Autumn*.

*Annus Philosophicus*, the Philosophical Year, is a common Month. *Dorn. and Ruland.*

*Annus Amadin*, is long Life. *Dorn.*

The Seasons of the Year, and their Vicissitudes, are the Occasion of various Changes of Diseases, as *Hippocrates* observes; for which Reason their Temperatures and Alterations are to be well observed.

*Anni Tempora Constantia*, καθεστῶτες καιροί, consistent Seasons of the Year, are such as keep their usual and expected Temperature, and promise none but Diseases of a favourable Kind, and easy to be judged. On the contrary, the *Tempora Inconstantia*, καιροί ἀκατάστατοι, inconsistent Seasons, are unconstant, unstable, and unfit for forming a Judgment. *Hip. Aph.*

*Anni unius Opus*, the Work of one Year, is said of the Philosophers Stone, because it may be brought to Perfection, and the whole Process finished, in one Year, being no more than changing Gross into Subtile, and Fixed into Volatile. *Castellus.*

ANO, ἄνω, upwards. It is opposed to κάτω, downwards, and imports the superior Parts. In *Hippocrates*, and others, this Adverb is often join'd with κοιλία, the Belly; or κοιλία is understood when it implies Vomiting; as κάτω join'd with it, or understood, implies Purging. Of purgative Medicines also some are term'd ἄνω, which are Emetics, others κάτω, which purge downwards.

ANOCHEILON, Ἀνώχειλον, from ἄνω and χεῖλος, a Lip. The upper Lip, which is opposed to κατώχειλον, the under Lip. *Castellus.*

ANODIA, Ἀνοδία, from a Neg. and ὁδός, a Way. An unpassable Way. Metaphorically it signifies an improper Method of Teaching or Learning, *Hippoc. ἐν ᾧδῳ χεῖλ.* and is opposed to εὐοδία, Euodia, an easy and expeditious Way of arriving at Knowledge, *Hippoc. πρὶ ἐυχρημον.*

ANODINA, narcotic Medicines. *Johnson.*

ANODMON, Ἀνοδμον, from a Neg. and ὁδμή, a Smell. Without Smell. Thus ἀνοδμον πύον in *Hippoc. Coac.* is Pus that has no Smell, or at least no foetid Smell. It is the same as *Anosmon*, ἀνοσμον, and is opposed to *dysodes*, foetid.

ANODON, Ἀνωδον in *Hippocrates* is expounded by *Erotian* βαθμὸν καὶ δῖον ἐδόν, the Threshold and Step of a Door, or a Stone at the Threshold of the Door, by which an Entrance opens into the House. The same, he says, is also called φλιά. But if this Interpretation of *Erotian* be right, he seems to have in View that Passage *Lib. de Art.* where *Hippocrates* orders τῆς κλίνης τὰς πόδας ἐρηρεῖσθαι πρὸς τὸν ἐδόν, the Feet of the Bed to be fasten'd to the Threshold of the Door. And also another Passage in the same Book, which runs thus: τὸ μὲν ᾧδῳ ἢ ἐδόν ἐρεῖσθαι, τὸ δὲ ᾧδῳ τὸ ξύλον τὸ ᾧδῳ βλημένον, One of them (the Levers) is fasten'd to the Threshold, and the other to a Piece of Wood set up for the Purpose: So that *Erotian* seems to have read ἀνωδον for ἢ ἐδόν. In *Suidas*, ἑδός signifies βατήρ, φλιά καὶ βαθμὸς, and τὸ κάτω ἢ ὄρος, the Stone, or wooden Step or Threshold, at the Foot of the Door, by which you enter the House. *Ilesychius*, ἑδός βατήρ ὁ πρὸ τῆς ὀφθαλμοῦ, the Step before the Door: It is also called ὄδος, (Odos). *Forsius.*

ANODUS is the Chymists Word for what is separated from the Nourishment by the Kidneys. *Rul. Johnson.* The Greek Word Ἀνόδους, Anodus, from a Neg. and ὀδός, a Tooth, signifies Toothless.

ANODYNA, ἀνώδυνα, from a Neg. and ἄδυν, Pain. Anodynes.

Medicines which procure Sleep, and Ease from Pain, were by the *Greeks* called *Hypnotic*, and *Anodyne*; and, if of a stronger Nature, *Narcotic*, or stupifying; and are such Substances as by their subtile, nauseous, and disagreeable Exhalations sometimes diminish, and sometimes quite destroy, the Motion and Sensation of the solid Parts.

Among the principal of the Hypnotic and Anodyne Medicines, are all the medicinal Preparations of the Poppy, especially Opium, which was by the Antients called the Tears of the Poppy, or Meconium, and is an Extract of the Poppy procured by boiling. But as for the Narcotic, or stupifying Medicines, all those of stronger Qualities may be reckon'd among them, such as the Preparatives of Mandrake, Henbane, Nightshade, Thorn-apple, and Dutoy (*Datura*).

Narcotics and Anodynes are justly rank'd in the Class of Poisons; for they quickly prove hurtful when given in a very small Dose, and kill entirely when exhibited in a little larger. Besides, they exert their Influences, and produce their Effects, principally upon the more noble Parts of our Bodies, in which the Powers of Sensation and Motion reside.

*Celsus* is of Opinion, that these should never be given without absolute Necessity, because they are of a violent Nature, and hurtful to the Stomach. And *Galen* says of Narcotics, that they are called Anodynes as improperly as a Man who was dead would be said to feel no Pain.

It is recorded of *Sylvius*, that he said he would not practise Physic without the Use of Opium; but notwithstanding this great Encomium, I am satisfy'd, that for one who receives any Benefit from Opium, a hundred lose their Lives. As Opium and its Preparations seldom fail to induce Ease from Pain, they too often lay a Temptation in the Way of People in the lower Class of Physic, to satisfy the Impatience of those they attend, tho' at the Expence of Life; insomuch that I was once a Witness of the Destruction of three People in this Way, by one and the same Person, and that in less than six Months: And in such Cases Physicians are usually called in too late to remedy the Evil.

It must, however, be confessed, that Anodynes are, in some Cases, of great Importance, if administer'd with Prudence and Judgment. Thus, if in Miscarriages the Placenta, or any Part of it, remains in the Uterus, Anodynes, by relaxing the Parts, and removing the Stricture, which is increas'd by Pain, make room for the Expulsion of what is retained. In like manner also, Anodynes are of Service, when a Stone is fixed in one of the Ureters, after proper Evacuations. And when a Suppression of Urine is caused by a painful Stimulation, and consequent Contraction, of the Sphincter Muscle of the Bladder, Anodynes, by removing the Cause, make way for a ready Discharge of Urine.

*Hoffman* is of Opinion, that Sleep and Anodyne Medicines quench Thirst, because they remove the Stricture from the Glands, and relax the Ducts of the Fauces, by which means a more plentiful Affusion of Moisture to them is procur'd.

But by Anodynes, in a more lax Sense, may be understood, all Remedies which relieve Pain. Thus a Lancet may, not improperly, be said to be an Anodyne, because, by evacuating a Part of the Blood, it mitigates inflammatory Pains. Thus all relaxing Remedies, Diluters, and Medicines which by any means destroy Acrimony, or expel Wind, are, in their Effects, Anodynes, when properly apply'd.

ANODYNIA, Ἀνωδυνία, Indolence, or Absence of Pain. *Castellus.*

ANODYNUM minerale, Sal Prunelle. *Castellus.*

ANOEIA, Ἀνοεία, from a Neg. and νόος, the Mind; the same as *Amentia*, Madness.

ANOMALIA, ANOMALUS, ἀνωμαλία, ἀνώμαλος, from a Neg. and ὁμαλός, equal, smooth. Irregularity, Inequality, unequal, irregular.

An unequal or irregular Pulse is one, that falling higher in one Part of the Artery, which swells and dilates itself to a greater Degree, than in another Part which is more narrow, and, in a manner, contracted, beats with unequal Force, so that one Part of the Artery seems to be lifted up with vigorous, the other with weak Efforts. *Galen. in Definit. Med.*

An unequal Pulse is one that gives sometimes a stronger, sometimes a weaker Stroke. *Galen. ibid.*

We call that an irregular or unequal Pulse, which consists of one, two, three, or more Kinds of Pulses. This Irregularity lies sometimes in one Pulse, sometimes in more. We call it an Irregularity in one Pulse, when, feeling the Pulse with our Fore Fingers, we find a different Pulsation under each Finger. Sometimes we feel one kind of Pulse under two Fingers, and another kind under the other two Fingers; and sometimes one kind of Pulse under one Finger, and a different one under the other three. *Attuarius, Lib. 1. πρὸ διαστροφῆς παθῶν, Cap. 1.*

Of unequal Pulses, some destroy the Equality in one Pulsation of the Artery, others in more; this latter Inequality is commonly called by Physicians *Systematic (collective)*. *Galen de Caus. Puls.*



ANOMOEOMERES, 'Ανομομερές, from *a* Neg. *ἕνσιος*, like, and *μέρος*, a Part. Dissimilar in Substance, or consisting of Parts of a different Kind. *Blancard*.

It is also called *ἑτερογενές*, heterogeneous.

ANOMOEOS, 'Ανόμοος, dissimilar, or heterogeneous. The Word is apply'd by *Hippocrates* to preternatural and vicious Humours generated in the Parts, which, if they tend upwards, he advises, by way of Revulsion, to purge downwards; if downwards, to endeavour their Solution by Revulsion upwards. *Forsius*.

ANOMPHALOS, 'Ανόμφαλος, from *a* Neg. and *ὀμφαλός*, a Navel. Without a Navel, as were *Adam* and *Eve*, being created, and not nourished by the Umbilical Vessels, as some of the Learned have been at much superfluous Pains to prove.

ANONA.

The Characters are :

It is a Tree growing to the Height of an Apple-tree; the Leaves are for the most part single and oblong; the Flowers, for the most part, consist of three thick narrow Petals or Flower-leaves, and are produc'd single upon their Foot-stalks: These Flowers are succeeded by conical, squamous, or netted Fruit, which have a pulpy Substance surrounding the Cells, in which are contain'd oblong hard Seeds.

The Species are,

1. *Anna maxima, foliis latis splendentibus, fructu maximo viridi conoide, tuberculis seu spinulis innocentibus aspero.* Sloan. Cat. Pl. Jam. THE SOUR-SOP; *vulgô*.

2. *Anna maxima, foliis oblongis angustis, fructu maximo luteo conoide, cortice glabro, in areolas distincto.* Sloan. Cat. Pl. Jam. THE CUSTARD-APPLE; *vulgô*.

3. *Anna foliis odoratis minoribus, fructu conoide squamoso parvo dulci.* Sloan. Cat. Pl. Jam. THE SWEET-SOP; *vulgô*.

4. *Anna aquatica, foliis laurinis atrovirentibus, fructu minore conoide luteo, cortice glabro, in areolis distincto.* Sloan. Cat. Pl. Jam. THE WATER OR SWEET-APPLE; *vulgô*.

5. *Anna foliis subtus ferrugineis, fructu rotundo majore laevi purpureo, semine nigro, partim rugoso, partim glabro.* Sloan. Cat. Pl. Jam. THE STAR-APPLE; *vulgô*.

6. *Anna foliis laurinis glabris viridi-fuscis, fructu minore rotundo viridi-flavo scabro, seminibus fuscis splendentibus, fissura alba notatis.* Sloan. Cat. Pl. Jam. THE SAPPADILLA OR NASEBERRY-TREE; *vulgô*.

7. *Anna maxima, foliis laurinis glabris viridi-fuscis, fructu minimo rotundo viridi-flavo, seminibus fuscis splendentibus, fissura alba notatis.* Sloan. Cat. Pl. Jam. THE BULLY-TREE; *vulgô*.

These Trees are the Produce of the warmest Parts of the West-Indies, as in *Jamaica*, *Barbados*, &c. where they are cultivated for their Fruits, which are in those Countries in very great Esteem, especially the *Sappadilla*, which they value more than any of the other Sorts, and hath been but lately introduc'd into some of those Islands. It is very probable, that none of these Trees were originally Natives of these Countries, but have been transplanted from some other Parts of the World; but being there planted, they thrive equally as well as if it were their native Soil, the *Sappadilla* only excepted, which is of a tenderer Nature than the others. *Miller's Dictionary*.

I take the first of these to be the AHATE DE PANUCHO RECHI.

ANONIS, a Plant thus distinguish'd :

*Anonis*, *Ononis*, *Aresta bovis*, Offic. Chab. 168. *Anonis* *sive Rosta bovis*, Ger. 1141. Emac. 1322. *Anonis* *sive Rosta bovis vulgaris*, *purpurea* & *alba*, *spinosa*, J. B. 2. 391. *Anonis* *spinosa*, *flore purpureo*, C. P. Pin. 389. Park. Theat. 994. Raii Hill. 1. 957. Synop. 3. 332. Tourm. Inst. 408. Elem. Bot. 325. Boerb. Ind. A. 2. 33. Rupp. Flor. Jen. 214. Buxb. 21. *Anonis*, Rivin. Irr. Tetr. Dill. Cat. Giff. 147. *Anonis*, *sive Ononis*, *Rosta bovis*, *Remora avatri*, Merc. Bot. 1. 19. Phyt. Brit. 8. *Anonis* *purpurea vulgaris spinosa*, *flore purpureo*, *foliis erectis lentiformibus*, Hist. Oxon. 2. 169. REST-HARROW. *Dale*.

*Miller* enumerates twenty-six Species of this Plant.

*Anonis*, which some call *Ononis*, (I read *ωνωνίδα*, according to *Terophrastus* and *Galen*) has Branches three Quarters of a Foot or more in Length, shrubby, full of Joints, and running out into many lesser Branches, or Sprays, with round Heads, and little thin Leaves like those of Lentils, and shaped like the Leaves of Rue or Meadow Trefoil, somewhat hairy, scented, and not of an unpleasant Smell.

Being gather'd before it produces Prickles, it makes a very grateful Pickle. The Branches are thick set with sharp, stiff Thorns, like a Palisade.

The Root is heating and attenuating. The Bark hereof, drank in Wine, provokes Urine, and breaks the Stone; the same absterges Ulcers which are crusted over. The Root boiled in Oxycras, and the Mouth washed therewith, eases the Tooth-ach. *Dioscorides*, Lib. 3. Cap. 21.

It is like Fenugreek, only more shrubby and hairy; after the Spring it shoots forth Prickles. The fresh Herb absterges the Margins of Ulcers. The Root is boiled in Posca for the Pain of the Teeth; and, drank in Wine, expels Stones and Gravel. Boiled in Oxymel to one half, it is given to those who are subject to the Falling Sickness. *Pliny*, Lib. 21. Cap. 4.

The Roots of Rest-harrow are very tough and woody, of a white Colour, running deep into the Earth, and sending out many shrubby Twigs or Branches, smooth and tender at the first springing, but afterwards tough, and full of long sharp Thorns, one growing at every Setting-on of the Leaves, which grow several together at the Joints, each being made of three Parts like Trefoil, and fastened to the Stalk by a flat Appendix: They are small, about half an Inch long, and crenated about the Edges; among these, towards the Tops of the Branches, grow the Flowers which are papilionaceous, or like the Flower of a Pea, but less and flat, of a reddish-purple Colour, growing in hairy five-pointed Calyxes. After these are fallen, come small flat Pods, each containing two or three small kidney-like Seeds. It grows in waste Grounds, and by the Road-sides, and frequently among Corn, flowering in June and July.

This Root, which is one of the five opening Roots, is the only Part that is used, chiefly the cortical Part, and is a good Medicine against the Stoppage of Urine, Gravel, and Stone, to cleanse the Reins and Ureters from tough slimy Humours. It opens Obstructions of the Liver and Spleen, and helps the Jaundice. A Decoction of it in Vinegar and Water, used as a Gargle, helps the Tooth-ach from a Defluxion of Humours. *Miller Bot. Off*.

ANONTAGIUS, the Philosophers Stone, the Gift of God, the Sulphur fixed by Nature. *Dornaus*.

ANONYMOS, 'Ανόνομος, from *a* Neg. and *ὄνομα*, a Name. It was formerly an Epithet of the second Cartilage in the Throat, afterwards called CRICOIDES, or ANNULARIS.

ANONYMOS is also an Epithet of several Exotic Trees or Shrubs; as

ANONYMOS *Ribesii foliis* is a particular kind of Shrub, with Leaves like those of Currans, and pentapetalous Flowers, of a faint-whitish Colour, and set together on the Extremities of the Sprays, in Form of an Umbella, and supported by small oblong Pedicles, the Flower-cup consisting of five Leaves. Each Flower is succeeded by two, and sometimes three Seed-vessels, or Pods, like those of Comfrey, but void of Seed, in our Gardens, because of the Inclemency of the Season. It is brought from *Virginia* and *Canada*. *Raii Hist. Plant*.

ANONYMUS *flore Coluteæ Clusii*, *Myrto-genista quibusdam*. *Chamæbuxus* *sive Chamæpyxos quibusdam*, J. B. *Chamæbuxus flore Coluteæ*, Ger. C. B. *Pseudo-chamæbuxus*, Park. It grows in several Parts of *Germany*. *Idem*.

ANONYMOS *frutex Brasiliensis, flore keiri*, *Marcgrav*.

Its Bark is ash-coloured; the Leaves grow alternately opposite, keel-shaped, indented about the Extremity, of a cheerful Green, bright, and elegantly distinguish'd with oblique Ribres; the Flowers grow in Spikes at the Extremities of the Boughs; and the Spike, before the Flowers open, is of a very fine carnation Colour, but then becomes yellow, as the Flowers are in opening, which are pentapetalous, each Petal supported by an acuminate pale-coloured Leaf; the Flower contains many yellow Stamina, and has a sweet Smell like our Wall-flower. *Idem*.

ANONYMOS *Brasiliensis, floribus umbellatis albis hexapetalis*.

ANONYMOS *baccifera, foliis salignis, Brasiliensis*, *Marcgrav*.

ANORA. See ANNORA. *Idem*.

ANORCHIDES, 'Ανόρχιδες, from *a* Neg. and *ὄρχις*, a Testicle. Such as are born without Testicles. *Castellus*.

ANOREXIA, 'Ανορεξία, from *a* Neg. and *ὄρεξις*, Appetite. Inappetency, a want of Appetite, or Loathing of Food. *Paulus*, Lib. 3. Cap. 27. 'Ανορεξία ὁσίαν ἐστὶν ἀποστροφῆς, ἢ τοῦ δυσκρεσίας ὑπερεχούσης κατὰ τὸν σῶμαχον, ἢ χυμῶν παρουσίας.

"An Anorexy is an Aversion to Food, occasion'd either by a Distemperature of the Stomach, or a Redundancy of Humours." Hence *ἀνορεξίαι* (Anorexi) are called *ἀσφοί*, such as will take no Food for want of Appetite. *Galen. Comm. 1. in Lib. 1. Epidem.* Τοὺς ἀνορεξίους καὶ ἀσίτους ὀνομάζουσιν οἱ Ἕλληνες τοὺς μὴ προσινιγμένους ὄσιν, τοὺς δ' ἀπετραμμένους προσίδης καλοῦσιν ἀποσίτους. "The Greeks call such as take no Food *Anorexi* and *Asiti*; but such as have an Aversion to Food when offer'd, are named *ἀπόσφοι*."

ANORGISMENON, 'Αναργισμένον, in *Hippocrates*, is explain'd by *Galen* in *Exeg.* by *ἀναμειμαλαγμένον*, (*anamemalagmenon*) mollify'd afresh. It is from *ἀνά*, and *ὀργίζω*, the same as *ὀργάζω*, to prepare by mollifying, or other means. Thus *ἀναργασμένον*, or *ἀναργισμένον σῶμα*, signifies a Body mollified and prepared for taking of Medicines. *Forsius*.

ANOSIA, 'Ανοσία, from *a* Neg. and *νόσος*, a Disease. The Absence of a Disease. *Castellus*.

ANOTASIER, Sal Ammoniac. *Ruland. Johnf*.



**ANOTHER**, *ἄλλωθεν*, an Adverb, as well as *ano*, of Time and Place, according to *Galen*, being significative of the Beginning of a Disease, and the upper Parts in the Body. *Foefius*.

**ANSER**, a Fowl very well known, and of much Use, of which there are two Sorts, the tame, and the wild. The tame Sort is thus distinguish'd:

*Anser*, Offic. Charl. Exer. 103. Bellon. des Oyse, 157. *Anser domesticus*, Schrod. 5. 314. Raii Ornith. 358. Ejuid. Synop. A. 136. Will. Ornith. 273. Aldrov. Ornith. 3. 102. Gesn. de Avib. 125. Jonf. de Avib. 92. Mer. Pin. 179. **THE GOOSE**. *Dale*.

The wild Sort is thus distinguish'd:

*Anser ferus*, Offic. Schrod. 5. 314. Aldrov. Ornith. 3. 147. Mer. Pin. 179. Raii Ornith. 358. Ejuid. Synop. A. 136. Will. Ornith. 274. Gesn. de Avib. 140. Jonf. de Avib. 93. Charl. Exer. 103. *De L'Oye sauvage*, Bellon. des Oyse, 158. **THE WILD GOOSE**. *Dale*.

*Lemery* says you are to chuse of either of them, that which is tender, neither too young nor too old, well fed, and that hath been bred in a pure and serene Air.

Geese are nourishing enough, and very solid and durable Food.

A Goose is a little hard of Digestion; and when it is too young, its Flesh is viscous, and apt to produce gross and excrementitious Humours; whereas, on the contrary, when 'tis too old, it is dry, hard, has a bad Juice, and causes Indigestions and Fevers.

Goose contains much Oil, and volatile Salts. The tame one also contains much Phlegm, but the wild one has not so much.

Both the one and the other, in Winter-time, agree with young bilious People, who have a good Stomach, and are used to Exercise and Labour.

#### R E M A R K S.

Goose is a Food that is pleasing enough to the Taste. The wild one tastes better than the tame one; because that being much more upon the Motion than the other, its Flesh is not so full of viscous and gross Juices.

The Goose lives in cold, moist, and watery Places. You meet with this Bird almost in all Countries; they live long, especially the wild Goose, if we believe some Authors. *William Gratarolus* observes, that they'll live to be twenty; and *Albertus* says sixty Years old. The tame Goose flies but little, and rises not far from the Ground; whereas the wild one flies high and swift.

A Goose lives by Land and Water, as amphibious Animals do: But the tame one lives more upon Land than the other. In short, wild Geese are almost always found in moist and marshy Places; and there are a great many of them in *Ethiopia*, which make great Havock in the Country.

It's observed, that a Goose is very vigilant, and sleeps so slightly, that the least Noise awakes her; and some People pretend, that this Bird is at least as useful as a Dog in the Night, to watch a House; for as soon as it hears any thing, it ceases not to make a Noise, when she seems to call the People of the House to her Relief, of which there is indeed a remarkable Example: When the *Gauls* were in the Night upon entering the Capital of *Rome*, they gave the Dogs that were therein some Victuals, to prevent their barking, which had the desired Effect; but nothing of Food that they threw before the Geese could hinder their Clamour, which awak'd the *Romans*.

It may be said in general, that the Flesh of a Goose is more agreeable to the Taste, than it is wholesome. In short it always abounds with heavy and gross Juices, that make it hard of Digestion, and therefore it ought to be very moderately used; however, 'tis proper enough for robust People that have a good Stomach, because it is nourishing, and a durable and solid Food.

Some pretend to tell us, that Goose-flesh, on which the Jews frequently feed, does not a little contribute to make them of a melancholy Temper, of a dull, sad, gloomy Humour, and of a bad Colour. The antient *Britains* scrupled to eat Geese; but the *English* do it now with Pleasure.

Of all the Parts of a Goose, *Galen* approves of none but the Liver and Stomach for Food; however, the Wing is also very good. Some pretend, that *Scipio Metellus*, a Roman Consul, was the first who used Goose-liver; others ascribe this Honour to *M. Sestius*, a Roman Knight.

The Skin of a Goose's Feet is looked upon to be astringent, and good to stop Bleeding, or immoderate Fluxes of the Menfes, if taken to the Quantity of half a Dram inwardly, after it has been first reduced to Powder.

Goose's Blood is looked upon to be good against Poison, of which two or three Drams are prescribed.

The Fat of a Goose is used in Physic. It is of a dissolving and mollifying Nature. It eases the Piles; and Pains in the Ears, if put into them. When taken inwardly, it loosens

the Body; and those Parts of the Body, which are affected with the Rheumatism, they rub with it.

They reduce Goose-dung into a Powder; and half a Dram of it is prescribed, in order to rarefy and attenuate the Humours; to provoke Sweating, Urine, and the Menfes; as also to hasten Delivery. *Lemery on Foods*.

*Dale*, from *Schroder*, farther relates, that the Fat of a Goose is good in an Alopecia; and that it cures Fissures in the Lips (see *ADIPS*); that the Dung dries, incides, and opens to a very great Degree; promotes the Discharge of the Secundines; and is excellent in the Jaundice, Dropsy, and Scurvy; and that the Cuticle of the Feet is a good Application to Chilblains.

The Salts of the wild Goose must be more highly exalted than those of the tame Sort, by reason of their habitual Exercise; and the Food of both Sorts, which consists of Worms, and other Insects, as well as Vegetables, furnishes their Flesh and Fat with a highly volatile and penetrating Salt: Hence they are subject to be very rank.

**ANSERINA**. See **POTENTILLA**.

**ANSJELI**. See **ANGELINA**.

**ANTACHATES**, *Ἀνταχάτης*, Amber, or a bituminous Stone of another Colour, which in burning smells of Myrrh, as *Agricola* writes of it. *Gortius*.

**ANTACIDA**. Such Remedies as resist or correct the Acidity of the Humours.

**ANTAGONISTA**, *Ἀνταγωνιστής*, from *ἀντί*, against, and *ἀγωνίζω*, to strive. Antagonist, a Word apply'd to such Muscles as are contrary to others; for Instance, the *Musculus Abductor*, and the *Musculus Adductor Brachii*, are Antagonists.

**ANTALGICUS**, *Ἀνταλγικός*, from *ἀντί*, against, and *ἄλγος*, Pain. 'Tis apply'd in general to such Remedies as ease Pain. *Castellus*.

**ANTALIMUM**, *fræ Antale, Tubulus Marinus*. *Rondel*.

Is a little Shell like a Pipe, about an Inch and an half long, of the Bigness of a large Quill at the thick End, and that of a little Quill at the other, having little strait hollow Lines, reaching from one End to the other, of a white or greenish-white Colour. It is found upon Rocks, and at the Bottom of the Sea. It incloses a small Sea-worm; and contains a little fix'd and volatile Salt, with a very little Oil, and a great deal of Earth.

It is alkaline, resolute, and desiccative. *Lemery de Drogues*.

**ANTAPHRODISIACOS**, *Ἀνταφροδισιακός*, from *ἀντί*, against, and *Ἀφροδίτη*, Venus. Antivenereal, an Epithet of such Medicines as extinguish amorous Desires.

**ANTAPHRODISICA**, the same as *Antaphrodisiaca*.

**ANTAPODOSIES**, *ἀνταποδίσεις*, from *ἀνταποδίδωμι*, to reciprocate. I think this may properly be translated Returns, or Periods, or Vicissitudes of the Paroxysms of Fevers. *Hippocrates*, *Aph.* 12. Section the first, says, That the Paroxysms and Forms of a Distemper are made evident from a Consideration of the Disease in itself, the Seasons of the Year, and the Reciprocations of the Periods, (*ἀνταποδίσεις τῶν περιόδων πρὸς ἀλλήλας*) that is, the Manner of, or Time in which they succeed each other, whether every Day, or every other Day, or at longer Intervals.

**ANTARTHRITICUM**, *Ἀνταρθριτικόν*, from *ἀντί*, against, and *ἄρθρις*, the Gout. A Medicine against the Gout. *Blancard*.

**ANTASTHMATICA**, *Ἀντασθματικά*, from *ἀντί*, against, and *ἄσθμα*, an Asthma. Remedies against the Asthma. *Blancard*.

**ANTATROPION**, *Ἀντατρόφιον*, from *ἀντί*, and *ἀτροφή*, a Consumption. An Epithet of some Medicines against Consumptions.

**ANTECEDENS**, *προηγμένη*, from *πρὸ*, before, and *ἵκνομαι*, to lead. Preceding, commonly apply'd to Cause. See **CAUSA**.

*Antecedentia Signa*, preceding Signs, are such as are observ'd before a Disease, as a bad Disposition of the Blood, which is the Cause of infinite Diseases.

**ANTELABIA**, *πρὸ χειλῶν*, from *πρὸ*, and *χείλος*, a Lip. The Extremities of the Lips.

**ANTEMBALLOMENOS**, *Ἀντεμβαλλόμενος*, from *ἀντί*, instead of, and *ἐμβαλλω*, to contribute. Substituted, spoken of such Medicines as may be substituted in the room of others. They are also called *succedanea*, succedaneous. *Castellus*.

**ANTEMBASIS**, *Ἀντεμβασίς*, from *ἀντί*, mutually, and *ἐμβαίρω*, to enter. A mutual Insertion, or Ingress, apply'd by *Galen* to the Bones.

**ANTEMETICA**, *Ἀντεμετικά*, from *ἀντί*, against, and *ἐμεῖναι*, vomitory. Remedies against preternatural Vomiting.

**ANTEDEIXIS**, *Ἀντεδείξις*, from *ἀντί*, against, and *ἐνδείκνυμι*, to indicate. A Contra-indication; as when any thing happens in a Distemper contrary to the primary Indication; as, for Instance, an inflammatory Pleurisy indicates Phlebotomy, but the Weakness of the Patient indicates the contrary.



# A N T

**ANTENEASMUS**, or **ANTENEASMUM**; a particular Kind of *Mania*, or Madness, when the Patients are furiously irritated, and endeavour to lay violent Hands on themselves.

**ANTEPHIALTICUS**, 'Αντεφιαλτικὸς, from ἀντί, and ἐπι-δύμι, the Incubus, or Night-mare. An Epithet of Remedies adapted to the said Disorder.

**ANTEPILEPTICA**, 'Αντεπιληπτικά, from ἀντί, against, and ἐπίληψις, the Epilepsy. Remedies against the Epilepsy, and convulsive Disorders.

**ANTEPRIMA MATERIA**, in *Paracelsus*, *Chirurg. Mag. Lib. 3. Cap. 11.* is a Name for that Tincture, which has a Power of tincturing and altering the *Prima Materia* (first Matter) of the Body, agreeably with, or contrary to Nature. *Castellus*.

**ANTERA**. See **ANTHERA**.

**ANTEREISIS**, 'Αντερεσις, from ἀντί, and ἐρέδω, to prop or sustain. The Renitency, or Resistance, which a firm and hard Body makes against an Impression. In this Sense the Word is used with respect to the Bones of the Ribs by *Hippocrates*, *Lib. de Artic.*

**ANTERIT**, Mercury. *Ruland. Johnson.*

**ANTEROS**, 'Αντερος, the Stone properly called **AMETHYSTUS**, which see. *Gorræus*.

**ANTHEDON**, the Name of a Tree in *Theophrastus*, which *Ray* takes for the *Mespilus Aronia*. See **MESPILUS**.

**ANTHELIX**, 'Ανθελίξ, from ἀντί, and ἑλίξ, the Helix. The inward Protuberance of the external Ear, within the **HELIX**, which see.

**ANTHELMINTHICA**, 'Ανθελμινθικά, from ἀντί, and ἑλμινς, a Worm. Remedies against Worms.

**ANTHEMIS**. See **CHAMÆMELUM**.

**ANTHERA**, 'Ανθηρά, from ἄνθος, a Flower. A compound Medicine, so called from its florid and very red Colour. Of this there are various Compositions. The following are from *Celsus*, which he prescribes for incrustated Ulcers in the Mouth:

Take of *Juncus Quadratus*, (round-rooted *Cyperus*, according to *Parkinson*) Myrrh, Sandarach, Alum, each an equal Quantity: Or,

Take Saffron, Myrrh, each two Drams five Grains; Orris, Plumous Alum, Sandarach, each four Drams ten Grains; *Juncus Quadratus*, eight Drams twenty Grains: Or,

Galls, Myrrh, each two Drams five Grains; Plumous Alum, two Drams five Grains; Rose-leaves, four Drams twelve Grains. Some, he says, take

Saffron, Plumous Alum, Myrrh, each one Dram two Grains and an half; Sandarach, two Drams five Grains; *Juncus Quadratus*, four Drams twelve Grains. The three former Compositions are pulverized, and sprinkled on the Parts affected; but this last is made into a Litus with Honey. *Celsus*, *Lib. 6. Cap. 11.*

An *Anthera* for incrustated Ulcers in the Mouth, and for swelled and stinking Gums:

Take *Iris Illyrica*, (*Florentine Orris*) Sandarach, *Cyperus*, each four Drams ten Grains; Plumous Alum, (some Copies add Myrrh) Saffron, Crocomagma, each two Drams; pound them, and mix them together. *Galen. de Comp. Medic. Sec. Loc. Lib. 6. Cap. 2.*

An *Anthera*, or *Collyrium*, for Defluxions and Pains in the Eyes, which gives Relief within an Hour:

Take of Saffron, four Drams ten Grains; Frankincense, two Drams five Grains; Cinnabar, four Drams ten Grains; Gum Arabic, two Drams five Grains. Infuse them in Wine, and when there is Occasion, bruise them till you have reduced them to a solid Mass, which make into a Litus with Honey. *Idem ibid. Lib. 4. Cap. 7.*

This Composition, as prepared by *Oribasius* and *Actius*, *Actii Tetr. 2. Sem. 4. Cap. 22.* is little different from the preceding, and recommended by them in Ulcerations of the Mouth.

This Medicine *Anthera* is recommended by *Caelius Aurel. Acut. Morb. Lib. 3. Cap. 3.* as good in a Quinsy.

The same is recommended by *P. Aeginet. Lib. 3. Cap. 66.* in an Ulceration of the Womb.

**ANTHERA** in *Galen*, *Celsus*, *Paulus*, *Actius*, and others, is the Name of a compounded Medicine appointed for different Parts of the Body, as *Anthera Stomachica*, &c. some in the Form of Powders, and some made up with Honey, still keeping the same Name, not taken from the Flowers of Roses, whereof in many of them there were none, but from the lively Colour of the Ingredients.

**ANTHERÆ**, in Botany, signifies the Summits, or little

# A N T

Heads, in the Middle of the Flower, supported by the Stamina, but properly those of Roses.

**ANTHEREON**, 'Ανθερεών, the Chin, and that Part of the Face where the Beard grows. *Hesychius* takes it for that Part under the Chin whence the Beard begins to sprout. *Pollu. Lib. 2.* understands it much in the same Sense. *Suidas* explains it of the Beginning of the Neck and Throat; and in this Sense it is taken by *Caelius Aurel. Lib. 3. Cap. 3. & 4. Acut.* where he renders it *Gutturis Exordium*, "the Beginning of the Throat." And again, *Lib. 1. Cap. 3. Tard.* he says, *Utramque Gutturis Partem, quam Græci 'Ανθερεώνα vocant*, "both Parts of the Throat, which are called by the Greeks, *Anthereon*, by the Latins, *Ruma*." *Hippocr. Lib. 5. Epidem. and Lib. περὶ ὁσέων φύς.* seems by 'Ανθερεών to mean the Chin.

**ANTHERICOS**, 'Ανθεικὸς, the Name the Antients gave to the Stalk or Stem of the Asphodel. "Theophrastus, as *Pliny* says, *Lib. 21. Cap. 17.* and the Greeks for the Generality, "and amongst them their principal Leader *Pythagoras*, call'd the Stalk of this Plant, which is a Cubit, and oftentimes two Cubits long, with Leaves like the Wild Leek, by the Name of *Anthericos*; and its bulbous Root they called *Asphodelos*. "We, says he, call the Stalk *Albucus*, and the Asphodelos is "our *Hastula Regia*." *Dioscorides, Lib. 1. Cap. 199.* makes *Anthericos* to be the Flower of the Asphodel. *Hesychius* expounds ἀνθεικας, the Stalk of the Asphodel, and also a Kind of Herb. *Eustathius*, *Varinus*, and the Scholiast on the first Idyl of *Theocritus*, make it the Fruit or Stalk of the Asphodel. *Hippocrates (Coacæ Præ.)* seems to take it for the cubital Stem of the Asphodel, when, in order to examine whether there be any Bone of the Head broken or not, he advises the putting of the Stalk of Asphodel, or of Galbanum, ἀνθεικὸν ἢ γάρβηκα, between the Teeth, and bidding the Patient to chew it.

*Suidas* tells us, that the Stalks of the Asphodel were called by *Theocritus* and *Herodotus*, ἀνθεικας, which he says, were of so tenacious a Substance, that they could not be broken. The same Author says, that ἀνθειξ, (*Antherix*) is so to be taken in the Scholiast on *Theocritus*, in *Theophrastus* and *Idæus*. *Apolodorus Doriensis* will only have the Stalk called by that Name. Some take ἀνθειξ for the Tops of the Beards of Corn, or for the Stalks.

*Plutarch*, in his Banquet of the Seven Wise Men, when he explains that noted Passage in *Hesiod*, "Ὅσον ἐν μαλάχῃ τε καὶ ἀσφοδέλῳ μέγ' ὄνηται, "What great Refreshment there is in Mal-lows and Asphodel," seems to take 'Ανθεικὸς for the Asphodel.

**ANTHERON**, 'Ανθηρὸν, florid. See **ANTHOS**.

**ANTHEROPHYLLUS**, **ANTHOPHYLLUS**. See **CARYOPHYLLUS**.

**ANTHIA**, 'Ανθία, a kind of Fish, as appears from *Oppian*, *Aristot. Rondeletius*, and *Aldrovandus*; but they disagree in their Descriptions. The Gall of this Fish is recommended by *Kirarnides*, as he is quoted by *Aldrovandus*, as good against Exanthemata, and the Fat against Tumors and Abscesses. *Castellus*.

**ANTHINES**, **ANTHINOS**, 'Ανθινὸς, ἀνθινός, from ἄνθος, a Flower. An Epithet of some medicated Wines and Oils. Such Wines had Flowers infused, or were sweet-scented, and called *Vina Odorata*, smelling like Flowers. The Oil that had this Epithet, was *Oleum Liliaceum*, or *Lirinum*, or *Susinum*, which are all the same. There was also the ἀνθινὸν μύρον, *Anthinum Unguentum*, the same also as the *Susinum* or *Liliaceum*, and differed from the Oil of that Name only, as *Galen* says, by the Mixture of some Spices.

**ANTHONOR**, the same as **ATHANOR**, which see.

**ANTHORA**. See **ACONITUM**.

**ANTHOS**, 'Ανθος, a Flower. 'Ανθος, in *Hippocrates*, signifies not only all Sorts of Flowers, but sometimes, according to *Galen*, signifies Seeds also; and in *Coac. Præen.* 'Ανθια (in the plural Number) means the same as ερυθρίμαλα, Rednesses. He also frequently puts ἄνθος, for the *Flor Aridis*. The Adjective *Antheron*, ἀνθηρὸν, in *Hippocrates*, is used to signify florid, very red, and bloody. Thus, *Lib. 6. Epid. Galen* explains ἀνθηρὰ πύσματα, (florid Spit) by ερυθρὰ καὶ ὕψαιμα, red and bloody; and so in many other Places. *Aræteus* also, in *Peripn.* has πύσμον διαίμον, ἀνθηρὸν σάδρα, "bloody Spit, extremely florid." Such as are of a very red Complexion, are called by *Hippocr. in Prorrhet.* 'Ανθισί, "florid;" and ἀνθηρὸν σῶμα, "a florid Body," in *Epid. 6. Aph. 3. Sect. 3.* is a Body that has a Redness diffused over it, by the Increase of the natural Heat, and recalling the Blood and Spirits to the external Habit, which is the Sign of a plentiful and laudable Supply of Aliment.

**ANTHOS**, when used alone, signifies the Flowers of Rosemary; and is sometimes taken for the Plant, tho' improperly.

**ANTHOSMIAS**, 'Ανθοσμίας, from 'Ανθος, a Flower, and ὀσμή, Smell. An Epithet applied to Wines that are sweet-scented, and of a most fragrant Smell. *Pocsius*.

**ANTHOUS**, properly *Rosemary*; but, transferr'd to Metals, signifies the fifth Essence, or Elixir of Gold. *Rulandus*.

**ANTHRACIA**, **ANTHRACOSIS**, **ANTHRAX**. See **CARBUNCULUS**.

**ANTHRA-**



# A N T

ANTHRACITES, 'Ανθρακίτης. See SCHISTOS.

ANTHRISCUS. See SCANDIX.

ANTHROPE, 'Ανθρωπῆ, or 'Ανθρωπῆν, from ἄνθρωπος, a Man. The human Skin, so called by *Herodotus*, as *Vesalius* observes, *Lib. 2. Cap. 5.*

ANTHROPOLOGIA, 'Ανθρωπολογία, from ἄνθρωπος, a Man, and λόγος, a Discourse. A Description of Man. *Blancard.*

ANTHROPOMETRIA, 'Ανθρωπομετρία, from ἄνθρωπος, a Man, and μέτρον, a Measure. A Survey of Man in all his Dimensions. *Castellus.*

ANTHROPOMORPHOS, 'Ανθρωπομορφος, from ἄνθρωπος, Man, and μορφή, Shape. A Name for the *Mandragoras*, or *Mandrake*.

ANTHROPOSOPHIA, 'Ανθρωποσοφία, from ἄνθρωπος, a Man, and σοφία, Wisdom, or Knowledge. The Knowledge of the Nature of Man. *Castellus.*

ANTHYLLIS is a Plant, of which there are two Species: The first is,

ANTHYLLIS PRIOR, Offic. *Anthyllis leguminosa marina Baetica, vel Cretica, five Auricula muris Camerarii*, Park. *Theat.* 1094. *Anthyllis falcata Cretica*, ejusd. *Loto affinis, siliquis hirsutis circinatis*, C. B. Pin. 333. *Loto affinis, siliquis hirsutis circinatis*, C. Baubini, Hist. Oxon. 2. 181. *Loto affinis, Anthyllis falcata Cretica Parkinsoni*, Ejusd. *Tripholium falcatum*, Alp. Exot. 257. *Auricula muris Camerarii*, J. B. 2. 387. Chab. 167. Raii Hist. 1. 922. *Medicago Cretica, Vulnerariae facie*, Elem. Bot. 328. Tourn. Inst. 412. *Medicago Vulnerariae facie, Hispanica*, Ejusd. & Boerh. Ind. A. 2. 35. SEA KIDNEY-VETCH.

It grows in Candy and Sicily, &c. by the Sea-shores, and flowers in the Summer. *Dale.*

ANTHYLLIS LEGUMINOSA, *Vulneraria*, Offic. *Vulneraria rustica*, J. B. 2. 362. Raii Synop. 3. 325. Tourn. Inst. 391. Elem. Bot. 311. Boerh. Ind. A. 2. 48. Dill. Cat. Giff. 128. *Vulneraria rustica, Anthyllis magna, Anthyllis leguminosa*, Chab. 167. *Anthyllis leguminosa*, Ger. 1060. Emac. 1240. Raii Hist. 1. 922. Mer. Pin. 8. *Anthyllis leguminosa Belgarum*, Merc. Bot. 1. 20. Phyt. Brit. 9. *Anthyllis leguminosa vulgaris*, Park. *Anthyllis leguminosa, Loto affinis, Vulneraria pratensis*, Hist. Oxon. 2. 182. *Anthyllis*, Rivin. Irr. Tetr. *Anthyllis Rivini*, Buxb. 22. Rupp. Flor. Jen. 208. *Anthyllis Loto affinis, Vulneraria pratensis*, C. B. P. 332. KIDNEY-VETCH, LADY'S-FINGER.

It grows in Pastures, and flowers in June. The Herb is in Use, and accounted a Vulnerary. *Dale.*

There are two Species of *Anthyllis*; one has soft Leaves very like those of Lentils, a Palm in Height; the Root is small and slender. It grows in sandy and sunny Places, and is of a saltish Taste.

The other Species has Leaves and Branches resembling Groundpine, but more hairy, shorter, and rougher. It bears a purple Flower, which has a very strong Smell, and has a Root like Succory.

The Herb, drank to the Quantity of four Drams ten Grains, is a powerful Remedy against a Difficulty of Urine, and Diseases of the Kidneys. Both Kinds bruised, and applied as a Pessary with Oil of Roses and Milk, allwage Inflammations of the Uterus, and are also Vulneraries. That Species which is like Groundpine, besides other Virtues, being taken in Oxymel, cures the Falling-sickness. *Dioscorides, Lib. 3. Cap. 153.*

I find no Virtues attributed to the *Anthyllis*, but what are transcribed from *Dioscorides*. *Dale* translates φλεγμοναί τας εν υτέρω, *Uteri Pituitas*, which is a Mistake; for it signifies Inflammations of the Uterus.

ANTHYPNOTICA, 'Ανθυπνωτικά, from ἀντι, against, and ὕπνος, Sleep. Medicines against excessive or preternatural Sleep. *Blanc.*

ANTHYPOCHONDRIACA, 'Ανθυποχονδριακά, from ἀντι, against, and ὑποχονδρία, the Hypochondria. Medicines against Disorders in the Hypochondria. *Blancard.*

ANTHYSTERICA, 'Ανθυστερικά, from ἀντι, and ὕστερ, the Uterus, Medicines against the Hysterical Passion. *Blanc.*

ANTIADDES, 'Αντιάδες, the Tonsils. It sometimes signifies the Tonsils when inflamed.

ANTIAGRI, from 'Αντιάδες, and ἄγρ, a Prey. Tumors of the Tonsils.

ANTIARTHRITICA, 'Αντιαρθρικά, from ἀντι, and ἀρθρίτις, the Gout. Medicines against the Gout.

ANTIBALLOMENA, 'Αντιβαλλόμενα. See ANTEMBALLOMENOS.

ANTICACHECTICA, 'Αντικαχετικά, from ἀντι, against, and καχεξία, a Cachexy. Remedies which amend a Cachexy. See CACHEXY.

ANTICADMIA, a Species of Cadmia, called also *Pseudocadmia*; ἀντι is here joined with it, to express its being substituted for the true Cadmia. See CADMIA.

ANTICAR, Borax. *Dorn. Rulandus, Johnson, Castellus.*

ANTICARDIUM, the same as SCROBICULUM CORDIS, which see.

# A N T

ANTICARRHALIS, the Epithet of any Remedy for a Catarrh.

ANTICAUSOTICUS, from ἀντι, against, and καῦσος, a burning Fever. An Epithet for Remedies against a *Causus*, or burning Fever.

ANTICHEIR, ἀντίχειρ, from ἀντι, over-against, and χεῖρ, the Hand. The Thumb. See POLLEX.

ANTICIPANS, this the *Greeks* express by προληπτικός. It is applied to Diseases, whose Paroxysms anticipate the Time of the preceding Paroxysm; that is, each of whose Fits begin somewhat sooner than the preceding. Thus, if a Quotidian comes one Day at Four in an Afternoon, the next Day at Three, and the next at Two, it is said to anticipate.

If the Catamenia also arrive sooner than the ordinary Period, they are said to anticipate.

ANTICNEMION, ἀντικνήμιον, from ἀντι, over-against, and κνήμη, the Leg, or Calf of the Leg. In *Hippocrates* it signifies the Fore-part of the Tibia, which is bare of Flesh.

ANTICOLICA, Remedies against the Colic.

ANTICONTOSIS, ἀντικόνωσις, from ἀντι, against, and κώνη, a Staff, or Pole. In *Hippocrates* it signifies the supporting a Person with a Staff, or Crutch.

ANTIDINICA, from ἀντι, against, and δῖν, Circumgyration. Medicines against a Vertigo, according to *Blancard*.

ANTIDOTARIUM, a Book wherein Antidotes are described, or the Place where they are made. It is much the same as *Dispensatory*.

ANTIDOTUS, or ANTIDOTUM, from ἀντι, against, and δίδωμι, to give. An Antidote. This Word is explained under the Article ANDROMACHUS, which see.

The Philosopher's Stone also is called by some Chymical Authors ANTIDOTUS, by way of Excellence.

ANTIDYSENTERICA, Remedies against a Dysentery.

ANTIFEBRILE, an Epithet for a Remedy against a Fever.

ANTIFIDES, the Calx of Metals. *Rulandus.*

ANTIGONI COLLYRIUM NIGRUM, the black Collyrium, invented by *Antigonus*, is thus prepared:

Take of Cadmia, thirty-six Drams twenty Grains; Antimony, twenty-five Drams; Pepper, eight Drams twenty Grains; Verdegris, eight Drams twenty Grains; Gum Arabic, twenty-five Drams; bruise them, and make them up in Rain-water. *Cosinus* added to this Remedy, ten Drams twenty-five Grains of the Juice of Centaury; in which he did right, in my Opinion. *Marcellus Empiricus.*

ANTIHECTICA, Remedies against a Hectic Fever. *Blancard.*

ANTIHECTICUM POTERII, a Medicine invented by *Poterius*, called also *Antimonium Diaphoreticum Joviale*. It is thus prepared:

Take equal Quantities of Tin, and Martial Regulus of Antimony, melt them in a large Crucible; then put to them, by little and little, three times the Quantity of Nitre; after the Detonation and Noise is over, wash the Whole with warm Water, till no Saltiness remains.

This is accounted a forcible penetrating Medicine, inasmuch as to make way through the minutest Passages, and search even the nervous Cells; whence, in all Disorders of that Original, it is reckoned very effectual. In those Heavinesses of the Head, Giddiness, and Dimness of Sight, whence proceed Apoplexies and Epilepsies, it does great Service. And in all Affections and Foulnesses of the Viscera of the lower Belly, it is reckoned inferior to nothing in cleansing away and discharging their Impurities. Thus it obtains in the Jaundice, Dropsies, and all Kinds of Cachexies. It is likewise esteemed of great Service even in obstinate Venereal Cases, in clearing the Blood from all Impressions of Contagion, and cleansing the Glands from those corrosive Recrements which such Distempers frequently lodge upon them, and occasion Blotches, and ulcerous Deformities. In short, there is hardly a Preparation in the Chymical Pharmacy, of greater Efficacy in most obstinate Chronic Distempers; but it is not often met with in Prescription, although constantly kept in the Shops. The Dose is from six Grains to a Scruple in grown Persons; for it is seldom given to Children, their tender Vessels not well bearing the Force of such Medicines. *Quincy's Dispensatory.*

ANTILEPSIS, ἀνίληψις, from ἀνιλαμβάνω, or ἀνιλαμβάνω, to lay hold of. *Hippocrates* in his Book κατ' ἑντρίχον, speaking of Bandages, says, that if there is any Danger of a Bandage slipping upwards, the ANTILEPSIS must be below; but if the Danger is of its slipping downwards, it must be above. By ANTILEPSIS, therefore, he means the Hold or Fixation of a Bandage upon a sound Part, either above or below the Part to be defended, in order to secure it from slipping off.

ANTILOBIUM, ἀντιλόβιον, that Part of the Ear which is opposite to the Lobe. I suppose it means the Tragus.

ANTILOGIA,



ANTILOGIA, from ἀντί, against, and λόγος, to speak. Contradiction.

ANTILOIMICA, from ἀντί, against, and λοιμός, the Plague. Remedies against the Plague.

ANTILOPUS, Offic. *Gazella Africana*, Raii Synop. A. 79. *Capra strepsiceros*, Aldrov. de Quad. Biful. 740. Charlt. Exer. 10. *Strepsiceros*, Bellon. Obs. ed. Clus. 21. Caii de Animal. 56. Gafn. de Quad. 294. THE ANTELOPE. Dale.

This is an African Beast like a Deer, remarkable for Swift-ness. The Hoofs and Horns are used in Medicine, and are esteemed good against the Epilepsy and Hysterics.

ANTILYSSUS, from ἀντί, against, and λύσσα, that Species of Madness which is caused by the Bite of a mad Dog. An Epithet for a Composition against this Madness. Thus a Composition of equal Parts of the *Lichen Cinereus Terrestris*, Greyground Liverwort, and black Pepper, is given in the College Dispensatory, under the Title of *Pulvis Antilyssus*.

ANTIMONIUM, Antimony. A great many excellent Medicines are furnished by this Mineral, to the regular Practice of Physic; and most of the empirical Nostrums which have made any considerable Figure, have been found to be Preparations thereof. Hence it has become a very important Subject, inasmuch that many Volumes have been written concerning it. Amongst these are *Basili Valentine's Currus Triumphalis* of Antimony, which, by the way, is not always to be depended on; and *Lemery's Traité de l'Antimoine*. *Angelus Sala* has also written well upon it.

*Stibium*, or Antimony of the Shops, σίμπυ of *Dioscorides*, probably the *πύργος* of *Hippocrates*, *Lapis Spumæ candidæ nitentisque, non tamen translucentis*, of *Pliny*; *Aimad*, or *Alamud*, of the *Arabians*; is a metallic, solid, heavy, brittle Substance, of a Lead-colour, with long shining Streaks, fusible by Fire, but not ductile. Native Antimony is of different Kinds; some is dug up with the Appearances of polished Iron or Lead, but brittle, and mixed with white or crystalline Stones. Some is composed of fine shining Lines like Needles, sometimes disposed in regular Ranks, sometimes without any observable Order, which is termed Male Antimony. Some is disposed in thin broad Plates, or *Laminae*, called Female Antimony by *Pliny*. Some is a Congeries of small Lead-colour'd Rods, got from a tender white Stone, and easily melting in the Fire like Sulphur, which enters its Composition in great Quantities. Antimony of this Kind is found in several Parts of Italy. Some is marked with Saffron-colour'd or reddish Spots, as the *Hungarian* Antimony, mightily esteem'd by Chymists, because of the Golden Sulphur with which they imagine it to be stor'd. Antimony is sometimes found in a particular Ore, but most commonly mixed with other Metals; and hence its Name may have been derived, Antimony being the same as ἀντιμωον, an Enemy to Solitude.

Ores of Antimony are found in many Countries, and very plentifully in several Provinces of France, as *Auvergne*, *Poitou*, *Britany*, and others. The Glebes of Antimony are dug out of the Earth, mixed with a stony Matter, and the pure Mineral or Metal is separated by breaking the Glebe into small Pieces, and afterwards treating it in the same Manner as in refining other imperfect Metals.

The French Antimony consists of almost equal Parts of common Sulphur, and of a Reguline Substance. The Sulphur in Antimony is discover'd by the Smell, and the blue Flame which it emits, when calcin'd in a dark Place; and when thrown into a Crucible with Nitre, it fulgurates in the same manner as a Mixture of Nitre and Sulphur. By distilling Antimony with corrosive Sublimate, we get the Cinnabar of Antimony, which consists of the Sulphur of Antimony, and the Quick-silver of the Sublimate. If Antimony be boiled in common Water, mixed with four times its Quantity of Quick-lime, or Pot-ash, the Sulphur it contains, being dissolved in the Water, by means of the alkaline Salts, may be precipitated by Vinegar, or any other Acid. The Reguline Substance is fusible, not ductile, shining like polish'd Iron, and seems to consist of broad *Laminae*; which, when the Regulus is rightly prepared, are disposed in a radiated Manner, so as to exhibit the Appearance of a Star on its upper Surface. This Regulus may, by being calcin'd in the Sun, be separated from almost all its Sulphur, and turned to an ash-colour'd, true, vitrifiable Calx; which, being melted by a strong Fire, is converted into a hyacinth-colour'd Glass. If to this Glass, while in Fusion, any sulphurous or other inflammable Substance be added, it presently recovers its Reguline Form and Splendor. Because of the great Quantity of Sulphur which Antimony contains, an acid Liquor may be extracted from it, in nothing different from Spirit of Sulphur. From all which Observations, it is evident, that Antimony consists of a sulphurous Acid, of a bituminous, inflammable Part, and of a vitrifiable, metallic Earth. The Regulus of Antimony is dissolved by *Aqua Regia*; but is only calcined by the other Dissolvents of Metals. Antimony dissolves and destroys all Metals, except Gold, when melted with them. From this Property of Antimony, many Names have

been given it by Chymists; such as, the devouring Wolf; *Saturn*, who eats his Children; the Lead of the Wife, and the Sugar of the Sun; because Gold, melted with Antimony, is purified from all other Metals with which it is mixed, and comes out brighter and cleaner than before. Antimony is commonly thought by Chymists to contain a true, but unripe, solar Sulphur; and hence it has been called Leprous Gold, and the *Ens primum solare*; but the Sulphur of Metals is not different from the pure, original Sulphur, or Oil of Animals and Vegetables.

Among the Antients, Antimony was used to dye the *Supercilia* and *Gilia* black. Accordingly we find in Scripture, that the wicked Queen *Jezebel*, in order to charm the King her Husband, painted her Eyes with Antimony; and the Women, who used that Practice, are also reproved by the Prophets; and from thence it was, that this Mineral got the Name of *μαλιν*. See ALCOHOL.

Antimony, according to *Dioscorides*, is astringent, obstructs the Passages, cools, prevents Excrescences in the Flesh, cicatrizes Ulcers, stops Bleeding, and cleanses the Filth and Ulcers of the Eyes. *Galen* mentions its astringent and drying Virtue, and says, that it was used by Oculists in their dry Collyriums in that Intention. It was the Custom of the Antients to burn it, then to quench it in Womens Milk, or Wine, and, having afterwards reduced it to Powder, to make it up into little Pastils, which being perhaps of a quadrangular Figure, it was from thence called *πύργος* by *Hippocrates*. The emetic Virtue of Antimony seems to have been unknown to the Antients, or, at least, they seldom used it as such, or as a Cathartic. *Dioscorides*, indeed, mentions it in one Place, as an Ingredient in a purging Medicine made of *Elaterium* and Salt; but the Antimony seems to have been there ordered only to give a Colour to the Composition. Its cathartic Quality became generally known about the twelfth Century, in which a German Benedictine Monk, named *Basili Valentine*, published a Book called *Currus Triumphalis Antimonii*, where he extols the Virtues of that Mineral, and its Preparations in the Cure of an infinite Number of Diseases. In the 15th Century, *Paracelsus*, following the reigning Opinion, made the Fame of the Virtues of Antimony become still more universal; however, Physicians disputed afterwards with great Warmth and Virulence, concerning the beneficial and deleterious Qualities of Antimony. At present they are all agreed, that it is a very powerful and safe Medicine; and they acknowledge two Virtues in it, depending on its different Preparations, one emetic, or cathartic, the other diaphoretic; for all Medicines prepared from Antimony do either purge upward or downward, or are diaphoretic and sudorific. Crude Antimony is seldom used in Physic; tho' it is certain, that it possesses no hurtful Qualities, since it may be taken inwardly in the Quantity of a Dram or two, without exciting any Nausea, and is often boil'd in sudorific and drying Apozems, without communicating to them any emetic or other prejudicial Quality; and, indeed, that Way of treating Antimony has no Effect at all, since it communicates nothing to the Water, at least nothing that the Water can retain, how long soever it be boiled in it. The active Qualities of this Mineral are therefore entirely owing to its Preparations, except it be render'd emetic by some acid Juices which it meets with in the Stomach.

Crude Antimony, taken inwardly, in the above-mentioned Quantity, dissolves Viscidities in the Fluids, opens Obstructions, and is commended by some as a safe Remedy in cutaneous Diseases, in Consumptions and Epilepsies. It is likewise of great Use in fattening Brutes. The external Use of it is likewise recommended for drying Ulcers, in curing the Itch, and other Diseases of the Skin, when mixed in Ointments; in Plaisters for resolving Tumors; and in *Collyria* for Inflammations, and other Affections of the Eyes.

The most common Preparations of Antimony are the *Hepar*, or Liver of Antimony; *Crocus Metallorum*, *Vinum Stibiatum*, Emetic Tartar, Glass of Antimony; the Golden Sulphur of Antimony; and the Flowers, Butter, and Cinnabar of Antimony; the Powder of Algaroth; the universal *Panacea*, Bezoar Mineral; Diaphoretic Calx, or Diaphoretic Mineral; and the Tincture. *Geoffroy*.

Mr. *Reaumur* gives the following Account of the Contexture of Antimony.

Nothing is more common than to observe, as it were, long and shining Needles on the Surface of broken Antimony; and that on which they are most distinct and visible, is esteem'd the best. Sometimes these Streaks are rang'd with so much Order, and branch out with so much Regularity in certain Directions, that even those who have daily Opportunities of observing this Phenomenon, can't help being struck with its Beauty. The Figures of the constituent Molecules of this Mineral may possibly contribute something to the Formation of these Needles: But the Texture and Configuration of the constituent Parts will not alone account for the Disposition of these Streaks, and their Arrangement with regard to each other; since upon breaking different Lumps of the same Antimony, and of the same



same Shape, we often observe quite different Arrangements of these Streaks or Needles. Let us take, for Instance, equal Masses of Antimony, of a regular conical Figure, because this Mineral is generally melted in a Species of Crucibles which resemble a Funnel, or an inverted Cone. Let several of these conical Masses be broken, each into several Parts; and we shall find the Needles of the same Cone disposed in different Directions, and varying in each different Piece. In one of these Masses, from a certain Height, we may observe all the Needles directed to the Point of the Cone; a little higher, the Needles shall be horizontal, or nearly perpendicular to the former; above these we shall observe others which shall sometimes be all directed to some Point of the Base of the Cone, and sometimes divide themselves into Cones, which shall have different Summits. In another of these Masses we shall not find the Needles disposed in an horizontal Direction, but running into conical Parcels, in Directions quite the reverse of each other; that is, one conical Parcel shall have its Summit pointing to the Apex of the Cone, and that of the other shall be directed to the Base. In some Lumps we shall perceive Needles every-where; in others we shall discover none at all. Often these Needles appear in one Part of the Lump, when no such thing is to be seen in the rest. Very commonly we see them disposed in Parcels of a conical Figure, whatever the external Form and Shape of the Lump is; for the internal Cones have no Dependence upon the external conical Form of the common Mass. Sometimes the Needles are disposed along the Sides of the Cone, and their Direction seems to follow the Sides of the Vessel in which they became fixed.

Notwithstanding these Varieties, the Cause which contributes to the Production and Arrangement of these Needles, is manifest; and however little we may advert to it, seems to be owing to nothing else but that Refrigeration, by means of which the mineral Substance is changed from a fluid into a solid State. It is to this Refrigeration, and its Progress, that the Needles of Antimony owe their Production and Direction: Any Substance, whose Fluidity depends only on the gross Particles of the Fire, which separate and agitate its constituent Molecules, resumes its former Solidity, when 'tis left to itself, and when the Particles of the Fire are dissipated: Now these cannot possibly be dissipated but successively, and in a certain Order, which is generally such, that those Parts of the melted Substance, which are either next to the Sides or the Mouth of the Crucible, first assume a Consistence; then the Molecules next to these become fixed, and so on till the whole Mass loses its Fluidity: Now each fixed Molecule applies itself so much the more effectually and necessarily to that which is contiguous, as the Contact of each fix'd Molecule with that which is contiguous, contributes not a little to fix it, and deprive it of Motion.

Molecules, successively added to each other, form a kind of Fibres, Threads, or Needles, the Directions of which shew the particular Order in which the Refrigeration has been carry'd on. If the Crucible was of the Shape of a hollow Bowl; if its Sides were every-where equally thick, equally warm, of the same Consistence, and equally acted upon by an Air equally cold; and if the melted Substance was of the same uniform Nature in all its Parts, all the Needles or Fibres would be so many Rays terminating in the Centre of the Bowl. If the Substance was such, that its fix'd Particles were almost all of a Length, we should find also concentrical Beds of Needles, form'd by Parcels of each Ray, and lying at equal Distances from the Centre.

But so many remarkable Circumstances do by no means concur in the ordinary Refrigeration of Antimony; neither is it possible they should: Hence the Irregularities, of which we have been talking, must necessarily arise. I have, nevertheless, made some Experiments in Crucibles of a conical Form, in which I have generally given the Needles Directions pretty near those I intended they should have. When the Crucible, immediately after it is taken off the Fire full of fluid Antimony, is plac'd upon any Substance more capable of cooling it than the common Air, then the Bottom and the Top of the Antimony contained in the Crucible, must necessarily become cool first. Accordingly, I have, upon trying the Experiment, often found the Needles divided into two Cones, one of which had its Apex at the Bottom of the Crucible, and the other its Apex near the superior Surface of the Antimony. When, after taking the Crucible from the Furnace, I have put it upon some Coals, and also laid some upon the superior Surface of the Antimony, that the Sides might cool as soon, if not sooner than the rest, I have then found a Part of the Needles disposed horizontally, or, at least, there were Parcels of them which form'd Cones, some of which were almost perpendicular to certain Parts of the Sides of the Crucible. I have also more surely produced the same Effect, by accelerating the Refrigeration of particular Parts of the Crucible by touching them with a wet linen Cloth. Sometimes there is a Hollow form'd in the Middle of the conical Mass of Antimony,

and in that Case we see Needles directed from the Sides of this Hollow; the first Beds which have become fixed, have serv'd instead of the Sides of the Crucible in this Case.

That the Needles may be arranged with Regularity, 'tis above all things necessary, that the Refrigeration be carried on slowly, or otherwise one Molecule becomes fixed before it can be well adapted and adjusted to the End of another fix'd Molecule. If, nevertheless, the Refrigeration is too slowly made, we shall have no more Needles than if it had been too precipitately carry'd on; that same Arrangement, which existed during the State of Fusion, remaining, the Particles of the Fire make their Escape insensibly, and almost equally, from all the Parts of the Mass: In this Case, all the Molecules owe their Dispositions, as well as their State of Rest, to the Fire's ceasing to agitate them; and here the Contact of the Molecules already fixed, does not any more contribute much to stop the Motions of the other Molecules. Thus when I have left the Crucible full of melted Antimony upon live Coals, till they were extinguished, it has sometimes happened that I have not found a single Groupe of Needles in all the Mass; and even when I found any, they were very few in Number.

In short, it seems so probable, that the Formation and Disposition of the Needles of Antimony are the Effects of a Refrigeration, that is neither too quick, nor too slow, that it would be superfluous to support and maintain this Opinion by a longer Detail of Experiments. Instead of being surpris'd at such a Phenomenon in this Mineral, methinks we ought rather to be astonish'd, that we do not find the same Appearances in all other Substances, which have been melted by the Fire, and afterwards become fixed. The Refrigeration in them must be made in the same Order as in Antimony, and must consequently produce similar Arrangements. This is, indeed, a plausible Dilemma, and a Circumstance, which throws a kind of Dissidence into the Mind, with regard to the Truth of a very specious and probable Hypothesis: For Masses of Metal, upon being broken, do not present us with the same Appearances that Antimony does. I am not ignorant, that curious and skillful Naturalists have purposely cool'd Masses of Metal as slowly as possible, without ever being able by that means to render the Arrangement of the Parts sensible. But because the Arrangement of the Parts is not perceptible in a Mass of Metal, as it is in Antimony, does it thence follow, that there is no such Arrangement in the former, as well as in the latter? Surely not. The Mass of Antimony is a brittle Substance, and its Parts are so much the more easily and thoroughly disengaged, as they do not mutually yield to each other. If one strikes a Mass of Antimony, it flies into Pieces, every one of which retains the same Arrangement of Parts it did before the common Mass was broken. This is not the Case with Masses of Metal; for they yield to Blows, a Circumstance which makes their Parts assume new Arrangements. One cannot break them till these new Arrangements have put the Parts into such a State, as that it is more easy for them to separate from one another, than to dispose themselves otherwise than they are; and consequently this State is very different from that which they were in originally. All the Parts then may be as regularly arrang'd in a ductile Mass, as in a brittle one, without our being able to discover that Arrangement, which we must necessarily conceive to be in it. But there are Means, notwithstanding the Ductility, and even the greatest Ductility, of a Metal, of observing this Arrangement of Parts which has hitherto escap'd our Eyes. Lead itself will even discover its Arrangement, if observ'd in the favourable Moment. All Metals are more or less ductile when cold; they also are so, when hot in a certain Degree, beyond which they are no more, properly speaking, ductile; their Molecules, being too far removed from each other, cohere but slightly, and may be entirely separated by the first Blow they receive, provided it is but moderately severe. What happens to all brittle Bodies, happens partly to them on this Occasion; so that their being broken, when in this State, allows us to discover the Disposition and Arrangement of their internal Parts. This Observation I made first upon Lead. If it is broken when cold, we observe no Granulations in it; but I happen'd to break a Mass of it when pretty hot, and was surpris'd to find it as much granulated as a Piece of temper'd Steel when broken. The same Lead, when become cold, could not be broken without reiterated Blows, neither did Granulations appear any more in the Parts where it was broken: Now since Lead, when hot, has Granulations; since it retains them at the very Time it acquires a perfect Consistence, and when its Heat is too faint to keep it in a State of Fusion; hence it is evident, that it must also have Granulations when entirely cold. There is no Cause to reunite these Granulations, and reduce many of them into one, in the one Case more than in the other; but the Blows of the Hammer will occasion such a Reunion in the cold Lead, whereas they will produce no such Effect in that which is hot.

Having observed the Granulation of Lead, I imagin'd I might also discover a regular Arrangement of Parts in it: With this View I melted some of this Metal in a conical Crucible, and allow'd it to



assume a Consistence by little and little; and when it had acquir'd a sufficient one, I took it, as yet very hot, from the Crucible; then a Blow of a Hammer easily divided it into some large Lumps; the fractured Parts of which discovered to me those Needles and Fibres which I wanted to see: The Granulations, applied one against another, in certain Directions, formed these Fibres; there were Groupes of them parallel to each other, and almost perpendicular to the Sides of the Crucible. In other Groupes all the Fibres were perpendicular to the Bottom of the Crucible; and, in a Word, I saw, in the Lead, Fibres, such as are observed in Antimony, and whose Arrangement and Disposition were the same.

But, at the same time, I observed certain Differences between the Fibres of Lead, for I shall give them that Name, and the Needles of Antimony: These latter are very shining, have a lively sparkling Gloss, and are like so many Mirrors, or small Glasses, applied to each other's Ends; whereas the Fibres of the Lead are less sparkling, and are so very far from being flat, that they are visibly round: To the naked Sight, or even with a Glass that magnifies moderately, they only have the Appearance of a Groupe of small Bowls, arranged like the Grains of a Chaplet: A Glass which magnifies more, or a Microscope, represents each of these Fibres not as very round; and by their means it appears, that the Fibre is form'd of Grains applied one against another, only by a small Part of their Ends; and that, whereas the Sides of the Needles of Antimony are strait, those of the Fibres of Lead are denticulated. When this Affair, which I only hint at, at present, is more narrowly inquir'd into, it will perhaps be found, that it is upon this Figure of the Granulations, and their Arrangement, that the Ductility of Metals, and some other Substances, depends. We perceive already, that this Disposition leaves empty Spaces, which are filled up by the Parcels put out of their former Situation by the Blows of the Hammer; that, by the Force of Blows, these Vacuities, or empty Spaces, must be in some measure filled up; and that the Substance then becomes less malleable. In fine, Laminæ, applied one above another, or one against another, without leaving between them Interstices proportion'd to their Largeness, must necessarily compose brittle Masses, such as that of Antimony. I have already hinted, but I here repeat it again, that, in order to see the Disposition of the Fibres of Lead, it is necessary to catch it in the favourable Moment. If a Metal is struck when too hot, it is too much divided by the Blows of the Hammer, and crumbled into Parcels, most of which are no larger than Grains of Sand: If, on the other hand, the Metal is struck when it is not sufficiently hot, it yields to the Blows, and discovers neither the Arrangement of the Granulations, nor the Granulations themselves. By repeating the Experiment twice or thrice, one may find the exact Moment.

I have broken Masses of Tin, Copper, and Zinc, when hot, and was at no great Loss to find, in each of them, the same Granulation, and the same Fibres, I had discovered in Lead. We have no Reason to doubt, but the same Filaments are to be discovered in Gold and Silver; but I have not, as yet, made any Experiment with that View.

All soft Bodies, or such as are easily soften'd, as Wax, Tallow, Fat, Butter, have no Occasion for such a Disposition of Parts; or if they have, we can never perceive it, because they never become brittle.

All Masses which have been melted, tho' brittle, may possibly not discover this Arrangement of their Parts upon their being broken. We have already observed, that too quick, or too slow a Refrigeration, may prevent their being discovered, even in Antimony. In those Salts which are most disposed to form themselves into Crystals, if they are made to crystalize too quickly, or agitated whilst the Crystalization should be carrying on, none will appear. The Parts of melted Bodies, in like manner, do not assume a regular Arrangement, if they are too quickly refrigerated, or agitated during the Refrigeration. Another Cause may, as yet, concur to disturb, or even totally prevent this Arrangement; which is, when the melted Body is not an uniform Fluid; when it is composed of Parts, some of which have a greater Disposition to become fix'd than others, which have only the same Degree of Heat with themselves. The Formation of Fibres, Filaments, and Needles, is the Effect of a successive Refrigeration; or, to speak more accurately, of the Parts acquiring a successive Consistence. If those Parts of any melted Substance, which are remote from the Sides of the Vessel, should become fixed, before such Parts as are nearer them have lost their Fluidity, there is no more any Reason, why these Parts should form a continued right Line with the others. The more any Fluid is mixed with these Parts, which have an equal Disposition to become fixed, the more difficult it will be for Needles to form themselves in it; and when it assumes a Consistence, the Threads will be the more interrupted in it. *Mém. de l'Acad. Roy. 1724.*

Mr. Geoffroy makes the farther following Remarks upon Antimony, and its Preparations:

Vegetable Acids, being, of their own Nature, more attenu-

ated than those which belong to Minerals, easily unite with the rarefied Sulphur of Antimony; and thus separating that Sulphur from the vitriolic Acid contained in the Antimony, an emetic Compound is formed; but mineral Acids, being more dense, fix and wrap up the sulphurous Parts of Antimony, so as not to stimulate the Stomach and Intestines, but to let them pass freely into the Blood, before they can be disengaged, and act according to their own Nature. Spirit of Wine destroys the emetic Quality of Antimony, because of the too great Proportion of sulphurous Parts, by which the saline *Spicula* are so much involved, as not to be able to act on the Stomach.

Antimony is the most excellent Emetic we have, and the most sovereign Remedy in many Diseases, when rightly exhibited. In giving Emetics, three things are to be considered; the Patient, the Disease, and the Medicine. We ought, first of all, to be informed, whether the Patient vomits easily: Some Persons cannot be made to vomit with any Dose of an antimonial Medicine; some are so weak as not to be able to bear the Fatigue and Straining of a Vomit at all; some are so subject to a Spitting of Blood, that, by giving them a strong Emetic, a fatal Hæmorrhage might ensue. We ought likewise to know, whether the Patient has any considerable *Hernia*, in which Case violent Vomiting might produce very dangerous Consequences; whether the Vessels be so full, as that a Rupture of any of them may be apprehended; and lastly, whether the Patient, if a Woman, be with Child. In all these Cases, Vomits seldom ought to be ventured upon, and never without taking the greatest Precautions before-hand.

The second Thing to be considered, is the Disease itself; and especially, whether the Seat of it be in the Blood, or in the *Præcordia*; the last of which may be discovered by a bitter Taste in the Mouth, Nausea, bilious Eructations, acid Vomiting, &c.

Some imagine, that Emetics can be of no real Service when the morbid Matter has reached the Mass of Blood, or when the Disease proceeds from an *Ataxia*, or Depravation of the Spirits, as in many spasmodic, hysterical, and hypochondriacal Affections: But this is a Mistake; for we find, antimonial Vomits are given with very great Success in such Cases; not so much as they evacuate what was before contained in the Stomach, as by deriving the morbid Matter from the principal Parts, the Lungs, for Instance, or *Pleura*, when threaten'd, or actually affected, into the Abdomen, from whence it is easily and readily carried out of the Body. And, for this Reason, *Hippocrates*, very wisely, advises to have recourse to Vomits in the Beginnings of such Diseases. In Convulsions an Emetic, by applying a Stimulus to the Fibres, of a contrary Nature to that from whence the Disorder proceeds, very often gets the better of that morbid Cause, and thus cures the Disease: For the same Reason *Hippocrates* gave Emetics in Diarrhoeas and Dysenteries, that the Tendency of these Evacuations might be directed upwards, and so destroyed. In Comatose Affections, Emetics powerfully shake the Viscera, increase the Oscillations of the nervous Fibres over the whole Body, and accelerate the Motion of the Fluids, or restore it, when lost, in any particular Part, so as to make them pass through the smallest Canals to their proper Excretories. Thus we often see one Dose of an antimonial Emetic prove likewise cathartic, sudorific, &c. in a very plentiful Degree. In giving these Emetics great Care ought to be taken, that none of the abdominal Viscera be inflamed; because such Inflammations might very probably be increased by the Strain of Vomiting. We must not likewise be misled by all kinds of Reaching, or Attempts to vomit; for these are many times owing to convulsive Contractions of the Stomach, which by giving an Emetic may be increased, or perhaps that whole Bowel may be inflamed.

Thirdly, such Preparations of Antimony are to be chosen as may be given with Safety, of which the Dose may not be too great for the Strength of the Patient, and yet may answer the Intention of the Physician. Antimonials given in Powders often disappoint Physicians, either by vomiting too much, or not at all. The Effects of Antimonial Wines are very uncertain, because of the different Qualities of Wines: But the most excellent Preparation of this kind is Emetic Tartar, which ought always to be given, dissolved in a proper Liquor, and not in too small a Dose; because if it is not strong enough to have the desired Effect, it will be apt to fatigue and torment the Patient with fruitless Nauseas and Reachings. Too great a Dose may likewise be dangerous, by exciting too violent Contractions in the Stomach, and Strainings of other Viscera, so as to cause spitting or vomiting of Blood, long-continued Reachings without bringing up any thing, Convulsions, and Inflammations of the Viscera.

If from any Dose of Antimonial Preparations, either too violent or too long-continued Vomittings should happen, the best Method is to drink a Glass of Water or Pilsen, acidulated with a few Drops of *Ol. Sulphuris per Campanum*, or Spirit of Vitriol; which will presently check the emetic Quality of the Antimony, and stop the Vomiting much more safely than Opium.

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While the Emetic works, the Patient ought to drink very plentifully, either luke-warm Water, Whey, or Veal or Chicken-water, with a View both to dilute the Contents of the Stomach, to be thrown up, and to make the Vomiting more easy, and less straining. On the other hand, Oils, and all fat Substances, check the Force of the Emetic too soon, and prevent the Dilution of the Contents of the Stomach, and are therefore to be guarded against.

Besides the medicinal Uses of Antimony, it is employed by several Artificers, to give the Silver Sound to Tin, in casting Bells, making metalline *Specula*, and Types for Printing, &c. It is likewise used by Goldsmiths in refining Gold; for when melted with that Metal, it destroys all other Metals that can be mixed with it, Silver itself not excepted, and turns them to Dross. *Geoffroy*.

## PROCESSES upon ANTIMONY.

### PROCESS I.

#### *The Solution of ANTIMONY in Aqua Regia.*

Take of the purest Antimony, collected from the Tops of the Cones, half a Pound; reduce it to Powder, and put it into a glass Vessel that is low, and pretty large, and cut off in such a manner as to have a wide Mouth. Set the Vessel, with the Antimony, under a Chimney that will carry the Fumes up without dissipating them; and then pour upon it half a Pound of Aqua Regia. By this means there will be excited an incredible Effervescence, with a prodigious Heat, Noise, and very red and dense Fumes, all which will soon be over. There will then remain at the Bottom a moist, thick, pappy Matter, of an Ash-colour, inclining to Yellow. Dry this with a very gentle Fire, keeping it now-and-then stirring with a Stick.

### REMARKS.

This is called an immerfive or humid Calcination of Antimony, by which this Fossil, which before was neither emetic nor purgative, acquires the most virulent Qualities. The yellow Matter interspersed through this Calx, is a true Sulphur of Antimony, which the Acid not being able to dissolve, is discharged from the other metalline Part of the Antimony, which is corroded by the Aqua Regia. Hence, therefore, in this Operation, there is both a Calcination and Separation. This Process is necessary to those that follow.

### PROCESS II.

#### *True Sulphur of ANTIMONY.*

Upon the Calx of the preceding Process pour some clean Water, shake them together, and pour off the turbid Liquor into another Vessel; add more Water, shake and decant as before; and proceed in this manner, till the yellow lighter Part, being thus dispersed thro' the turbid Waters, is separated from the more heavy metalline Portion. Mix the decanted Waters together, pour off the whitish Water at Top from the sulphurous Matter that falls to the Bottom, which dry with a very gentle Fire, and it will be a true Sulphur in every Character. If you put larger Lumps of Antimony into Aqua Regia, and so perform the Solution, then the Masses of Sulphur will be larger; for the Aqua Regia, penetrating to the larger Portions of the Metal, that lie concealed in the Sulphur, will dissolve and extract them, and so render the Masses of Sulphur more visible.

### REMARKS.

Hence it appears, how intimately Sulphur may lie concealed under the Appearance of a shining Metal, and how surprisingly the Aqua Regia can find out the metalline Part amongst the Sulphur. But how wonderfully does the Sulphur here retain its proper Nature, without any Alteration? This is that Sulphur of Antimony which *Van Helmont* orders to be extracted, and which, he says, scarcely differs from the common Sulphur, except that it is a little more upon the Greenish; and, indeed, there is scarcely any Difference: Nor, perhaps, does the Cinabar that is made with it, in regard of its Virtues, deserve so much Trouble: Certainly, the subliming it seven times, as he directs, is not so easily done as directed. In this Operation, however, we have an ocular Demonstration, that Antimony consists of a sulphurous and a metalline Part.

### PROCESS III.

#### *Glass of ANTIMONY.*

1. Take of the purest Antimony, reduced to Powder, two Pounds; put it into a large earthen Dish that is not glaz'd, and, in the open Air, place it over a Fire, in such a manner, that the Powder shall fume, but not melt. The whole Art depends on thus moderating the Fire: Keep

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the Powder continually stirring with an earthen Rod: A white, thick, foetid Fume will arise, which is prejudicial, and therefore must be cautiously avoided by the Operator's standing so, that the Wind shall blow it from him. Carefully continue this Calcination, in an equable manner, till the Matter fumes no longer. Then increase your Fire a little, and, if it begins to fume, keep it up till it ceases; and then make your Fire pretty strong, till the Dish begins to be red-hot, and the included Matter emits no more Fumes; and you will, by this means, have a Calx of a greyish Colour. If you proceed to calcine this with a still greater Degree of Fire, till the Powder grows red-hot, you will then have a yellow Calx, which is more purified from the volatile Part. If, in the Beginning of the Operation, your Fire should happen to be so strong as to melt the Antimony, and make it run into Lumps, you must immediately slacken your Fire, and reduce these again to Powder. This is the Calcination of crude Antimony, by means of Fire alone, and it is of great Use.

2. Put this Calx into a Crucible, round which place Fire at a Distance, gradually bringing it nearer and nearer, that the Crucible may gently and equably grow warm, hot, very hot, and at last red-hot, it being all the time close covered with a Tile, that no Coals or Ashes may fall into it. Increase your Fire till the Calx is put in Fusion, in which State let it stand for half a Quarter of an Hour, and then pour it out upon a very hot, dry Marble, and you will have a brittle, sub-pellucid, hard Cake, of a dark-yellow Colour, which is called Glass of Antimony, and is so much clearer as it stands longer in the Fire.

### REMARKS.

Antimony consists of common Sulphur, and a metalline Glebe. All the Sulphur becomes volatile, by the Fire made use of for this Calcination; but the metalline Part bears a melting Fire, as appears when it is melted into Cones; but then it always yields a white suffocating Fume. Hence we know, that when powdered Antimony is ustulated with such a Fire as is not sufficient to melt it, then the external Sulphur is gradually expelled; by which means the metalline Part is purified, and at last is converted into a torrifed Calx, which, tho' the Antimony was innocent before, is a most virulent Emetic: How this should happen, is not hitherto well explained. This Calx, being put in Fusion, is Antimony converted into Glass. The Adepts say, that there is a great Agreement betwixt Lead and Antimony, which is confirm'd by the melting this Calx into Glass. This is almost a fatal Emetic: If it is infused in a soft Wine, not too acid, it yields an Emetic with very little Loss of its Substance. The Virtue, however, may be pretty soon drawn out, by repeating the Infusion: This makes the Emetic Wine every-where sufficiently known. This Glass of Antimony consumes almost all metalline Bodies in the Test, but to Gold it gives a beautiful Colour. *Boerhaave*.

This, *Geoffroy* says, is of a Hyacinth-colour; but it may be made white, yellow, red, or black, by the Addition of Borax, Sulphur, Sal Gem, or Orpiment. Glass of Antimony is a very strong Emetic, but may be weaken'd by powdering it on a Marble, and then burning Spirit of Wine upon it, for three or four times: Thus delugated, it may be given in the Quantity of ten or twenty Grains, which will either vomit or purge gently, and sometimes only cause a Sweat; on which Account it sometimes cures intermitting Fevers, if given a little before the Paroxysm. If this Glass, reduced to an impalpable Powder, be digested, for two or three Days, with Spirit of Wine, in which half an Ounce of Mastic has been dissolved, shaking the Vessel often; and the Spirit be afterwards evaporated by a gentle Heat; the remaining Glass of Antimony and Mastic, incorporated in this manner, will have no emetic Quality. This Powder may be taken in the Quantity of six Grains. *Geoffroy*.

### PROCESS IV.

#### *A Regulus of ANTIMONY, with Salts.*

1. A Regulus is procured from Antimony by every Method in which the metalline Part is separated from the sulphurous; and the more accurate this Separation is, the purer always is the Regulus. In order to this, then, the fossil Antimony, in its native Glebe, is sometimes put into conical earthen Pots, and melted with a moderate Fire, that only makes it a little red, and thus is formed into Cones; the lower Parts of which, or those towards the Vertex, are heavy, purer, and more metalline; whilst the broader Parts, towards the Base, are less solid, darker, and more sulphurous. In this manner is Antimony depurated to a Regulus, by Fusion alone.

2. Take of common crude Nitre, two Parts; of good Tartar, three Parts; and of pure Antimony, four Parts. Dry these well, and separately reduce them to a fine Powder; and



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and whilst they are exceedingly dry, mix them intimately, by rubbing them together. Make the Mixture moderately hot, and by all means very dry. Take a large Crucible, heat it gradually in the Fire till it is perfectly red-hot, and then throw into it two Drams of this dry hot Powder, which will take Fire violently, and with a great Noise, and throw out Sparks on every Side. When every thing is quiet, throw in the same Quantity more, and you will again have the very same Phenomena. Proceed in this manner till you have consumed all your Powder. And here the following Cautions are absolutely necessary: Let the Crucible be a large one, that the Matter, when it is violently agitated, may not run over: Throw in but a little at a time, lest the Mixture, when it takes Fire, should fly in large Sparks out of the Vessel: Let the preceding Portion be always thoroughly on Fire, be at Rest, and perfectly red-hot, before you throw in another; for fear the Matter, being hotter underneath, and colder at Top, should form a Crust, under which the Fire, being confin'd, would cause an Explosion much louder, and more violent, than that of a Cannon: For you have here a true *Pulvis tonitruans*, from the Nitre, Tartar, and Sulphur of the Antimony. And lastly, let the Crucible be thoroughly red-hot, for fear of the same terrible Accident. If a young Beginner, not aware of these things, goes about to make a Regulus, according to the common Directions, he runs a Risk of his Life: If he observes these Cautions, he may perform the Operation safely. After the Detonation is completed, in the manner described, cover the Crucible with a Tile, and increase your Fire till the Matter flows like Water: Have by you, at the same time, a metal-melting Cone, perfectly dry, a little warm, and rubb'd over on its Inside with Tallow, into which pour the melted Matter with one Stream, and immediately strike the Cone. Upon pouring in the Matter, a sudden Flame will burst out from the lighted Tallow. Let the Whole stand quiet and cool, and then invert the Mould, and with a Hammer strike it at the Base, and the Antimonial Cone will drop out; the lower or vertical Part of which will be the metalline Part of the Antimony, whilst that towards the Base will consist of the Salts and Sulphur. The upper Surface of the metalline Mass, where it is covered with the Scorix, will be marked with the Figure of a Star. The Scorix will liquify, and swell in the Air.

## R E M A R K S.

As this Process discovers to us the true Principles of the Metallurgic Art, it is worth while to consider it a little attentively: First, the fossil Antimonial Glebe, being melted with a proper Fire, becomes liquid and heavy: Hence the lighter Bodies that are in it, as Stones and the like, and which do not adhere to the metalline Part, according to the Laws of Hydrostatics, are cast upwards; and so the heavier metalline Part is rendered purer. And thus, in the Metallurgic Art, the metalline Matter is often, by Fusion, separated from the rest.

But, by another Metallurgic Operation, the metalline Part of the Antimony is now freed from that Sulphur, from which it could not be separated by simple Fusion, but which still remained closely combined with it; and this is done by the Help of the Powder of Tartar, and Nitre, which is therefore a fluxing Powder. When the Antimony, which consists of a sulphureous and metalline Part, is mixed with the Nitre and Tartar, and committed to the Fire, then the Nitre, Tartar, and Sulphur of the Antimony take Fire with a prodigious Impetus; and by this means there is produced a fix'd Alkali from the Nitre and Tartar: But this fix'd Alkali, being agitated with this intense Fire, greedily attracts the Sulphur, and intimately unites it with itself; and then the metalline or mercurial Part, as it is called, which is unaffected by an Alkali, being freed from its Sulphur, and put in Fusion, subsides from the lighter Parts, and collects itself at the Bottom into a Mass, which goes by the Name of *Regulus*. And as the long sharp Spicula of the Antimony dispose themselves horizontally, from the Centre to the Surface, hence they form a Star, which the Alchemistical Magi call a *Stella Signata*, and have in great Veneration. This Regulus, tho' it appears pure, will, upon being fused again with an Alkali, produce fresh Scorix: Nor, perhaps, can it be ever entirely freed from its Sulphur; and hence, probably, it always remains brittle; for Sulphur will render Metals so. The Scorix are the Sulphur of the Antimony, dissolved in a fixed Alkali; and hence their Virtues are easily understood. The Regulus is emetic, as is the Glass, and, by Infusion, yields an Emetic Wine in the same manner. This, then, is another Method of purifying Metals, by the Help of Salts, from every thing sulphurous, oily, and arsenical, which render the metalline Glebes brittle and volatile; and which being entirely separated, the Metals become pure and fixed. *Boerhaave*.

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The Proportions of the other Ingredients to the Antimony, and to each other, are somewhat different, in the Receipts of different Authors.

*Lemery* says, this may be given from two to eight Grains internally; and *Wilson*, transcribing from him, is of the same Opinion. However, a Person that ventures to give it internally, should be very well acquainted with the Effects of the Remedy, as well as with Diseases and Constitutions.

Of this Regulus of Antimony Cups are made, which communicate an emetic Quality to Wine which has stood in them for a Night's-time. It is likewise made into little Balls or Pills, which are both emetic and cathartic, though swallowed a thousand times, from whence they have the Name of the *Perpetual Pills*.

*Reguli* of Iron, Copper, Tin, Lead, Silver, and Gold, are made by melting these Metals with the *Regulus* of Antimony. The *Scorix* found above the *Regulus* in the Cone, are of a yellow or saffron Colour, and fully impregnated with the Sulphur of Antimony. *Geoffroy*.

## P R O C E S S V.

### *Martial Regulus of ANTIMONY.*

Take of new Filings of Iron, half a Pound; make them red-hot in a Crucible, and then gradually add of Antimony, very finely powdered, and made hot and dry, sixteen Ounces. Keep these in a strong Fire till they are thoroughly melted; and, whilst they are in this State, throw in gradually, of the purest, driest, fine Powder of Nitre, made very hot likewise, four Ounces. Urge this Mixture with the strongest Fire, till it flows like Water, and keep it in that Condition for a Quarter of an Hour; and then, whilst it is perfectly fluid, pour it into a melting Cone, exactly as in the preceding Process. By this means I have had a starry Regulus, as bright as Silver, to the Quantity of seven Ounces and a half. The Scorix are of a very different Nature from the former, dry, hard, irony, sulphurous, saline, and acrid, and scarcely dissolve in the Air.

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The Sulphur of the dissolved Antimony here greedily unites with the ignited Iron; and hence produces sulphurous Scorix of Iron. Upon adding the Nitre, this is strongly deflagrated with some Portion of the same Sulphur; and hence the Whole is made to flow by the Intensity of the Fire. When the Matter, then, is in this very liquid State, the metalline Part of the Antimony, which is heaviest, sinks, by its proper Weight, to the Bottom; whilst the Sulphur of the Antimony, the corroded Iron, and Nitre, are cast to the Top. *Paracelsus* asserted, that Iron would more intimately separate the sulphurous Part of Antimony from the mercurial, than could be effected by a vegetable Alkali; and hence that this Regulus was much the fittest to furnish us with the Mercury of Antimony, for the profounder Chymical Operations. And certainly, we see, by this Experiment, that Iron is capable of extracting the Sulphur from metalline Glebes, and giving them Fixity and Malleability. *Alexander Suchtenius*, a Scholar of *Paracelsus*, wrote two whole Treatises of Antimony, from which is borrowed the following Process.

## P R O C E S S VI.

### *Another Regulus, called the Alchemistical Regulus of ANTIMONY.*

1. Take of Iron Nails, half a Pound; put them into a strong, large, sound Crucible, cover it with a Tile, place it in a Wind-furnace, and cautiously raise a Fire till the Nails are perfectly ignited. Then, by a little at a time, add of the best powdered Antimony, made very dry and hot, sixteen Ounces, and cover the Crucible a little with the Tile. As soon as ever the Antimony is thrown in, it emits a white Fume; and, not a great while after, is put into Fusion, and at the same time causes the Iron to melt also. When they are reduced to a very liquid State, which may be examined by a long Tobacco-pipe, throw in, gradually, of the hottest, driest Powder of Nitre, three Ounces. Upon every Injection, there is excited a prodigious Ebullition, Noise, and Conflict, and sometimes a Crackling; and if a Person should unwarily throw in the Nitre damp, the Whole would fly about with imminent Danger to the Operator. When they have stood in this Condition some time, the Matter casts out lucid Sparks. Let it flow, like Water, for the Space of four or five Minutes, and then pour it out into a melting Cone, which strike gently; and when the Mass is grown cold, knock it out. In this manner I have had eleven Ounces six Drams of Regulus, and eleven Ounces of Scorix; so that, with what stuck to the Crucible whilst it was pouring out, there were lost four Ounces two Drams.

2. Put



2. Put this Regulus into another Crucible, set it in the Fire, melt it, and, when it is in Fusion, add to it three Ounces of Antimony, reduced to Powder, and made very hot and dry; and when this is melted, throw in, by degrees, three Ounces of Powder of Nitre, very hot and dry also; and then fuse them with an intense Fire, and keep the Matter in a perfect liquid State for the Space of five Minutes; after which pour it into a melting Cone as before. By this means I have procured ten Ounces and six Drams of Regulus, which were purer than the former.
3. Take this second Regulus, put it into a fresh Crucible, melt it again, and throw into it three Ounces more of Nitre, with the same Caution as before. Melt the Mixture with a very intense Fire, for otherwise it will not flow, and then pour it into a Cone. By this third Fusion I have had nine Ounces two Drams of an exceeding white Silver-colour'd Regulus, that was surprisngly starry, and two Ounces seven Drams of Scorix; so that there was lost one Ounce five Drams.
4. Once more melt this third Regulus in another Crucible, and then add three Ounces of Nitre as before, which will then require a prodigious strong Fire to melt it, tho' the Regulus flows at the Bottom of the Crucible like Water. Keep them in perfect Fusion for the Space of an Hour, and then pour them into a Cone. Thus then I have obtained seven Ounces three Drams of an exceeding pure and beautiful starry Regulus, that looked just like Silver, together with two Ounces seven Drams of Scorix, of a golden Colour, and a perfect fiery Taste; which is a pretty extraordinary Phenomenon.
5. For this Operation, the Crucibles must be very sound, strong, and large, and must be heated very gradually: The Fire must be equably kept up to its greatest Strength, for otherwise the Nitre will not melt; and the Cones must be moderately warm, very clean, and perfectly dry, and, within, rubbed over with Tallow. If you attend to these Cautions, you will meet with Success.

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There are many useful things to be learned from this Operation: Iron, which is extremely difficult of Fusion, melts in Antimony, as all other Metals do in Lead; and then the Iron, being corroded by the melted Antimony, becomes combined with its Sulphur; whilst both the mercurial Part of the Iron and the Antimony are expelled, and, uniting into one Mass, fall to the Bottom; and the Sulphur of them both rises together to the Top. The Nitre that is thrown in burns furiously with these sulphureous Bodies, agitates the melted Elements to their very inmost Parts, and hence unites those that are similar, and separates the heterogeneous: By the Force of the Antimony the Iron is destroy'd, and its metallic Sulphur, which is the Gold of the Alchemists, unites with the internal metallic Sulphur of the Antimony, and thus both remain combined with the mercurial Part of the Antimony; and hence you have a Regulus, which is beautified with a Star, and by its fine silver Colour teaches us the exceeding Purity of its Mercury. The Scorix contain Iron, Sulphur of Antimony, and Nitre, united together, and changed into a wonderful Body, whose secret medicinal Virtues, when it is properly managed, and rightly applied, those who are acquainted with these things greatly extol. These Scorix puff up surprisngly in the Air: But let this suffice concerning the first Fusion. In the second, the external Sulphur is still farther extracted, and the metalline Sulphurs of the Iron and Antimony are more fixed, with their Mercuries, into a purer Regulus. In the third Fusion, the surprisng Power of the sulphureous metallic Fire, that lies concealed in the Regulus, begins to discover itself, which, by fixing the Nitre, renders it exceeding difficult of Fusion, tho' it was before melted by a more gentle Fire than any other native Salt; and impresses upon it a remarkable igneous Quality, so that, upon being applied to the Tongue, it truly burns it, tho' its proper Taste is naturally exceedingly cold; it makes it, moreover, alcallescent, without the Addition of any vegetable Substance, and causes it to run spontaneously in the Air, tho' it would remain dry in it before. The fourth Fusion discovers the same things more evidently: Here the pure Sulphur, only by its odorous Exhalation, as it were, and simple Contact, changes the Nitre more powerfully, and thus demonstrates the secret Power of metallic Sulphurs. This Regulus has almost turned the Heads of some of the profoundest Chymists. Consult *Paracelsus*, *Suchtenius*, *Philaletha*, *Pantaleon*, *Becher*, and *Stahl*. For my own Part, when I reflect upon the Time and Pains I have employed in examining into the Nature of this Regulus, I cannot forbear being surprisng at my own Patience, and can scarcely help being ashamed to think, that so great a Part of my Life should have been spent in this Inquiry.

The Colour of Gold is exalted, or restored, when impaired, by means of this Regulus; as the exceeding white Nitre, by

being thrown into this Regulus, in Fusion, immediately contracts a golden Hue. The Regulus, depurated even in this manner, will vomit. The Scorix give a beautiful Tincture to *Alcohol*.

P R O C E S S VII.

Golden Sulphur of ANTIMONY.

Boil the Scorix of Process 5. till they are all dissolved; into the inodorous Liquor drop Vinegar, and there will instantly arise a most noisome, stercoraceous Smell, and the Liquor, which before was thin, will become very thick. Drop in more Vinegar, stir the Mixture about, and proceed in this manner, till nothing more will precipitate. Let the Vessel stand quiet, and a Precipitate will gradually subside to the Bottom, which will be reduced to a much less Compass than one would expect. Pour off the Liquor that swims at Top; wash the Precipitate with Water till it is absolutely insipid, dry it gently, and keep it under the Title of SULPHUR AURATUM ANTIMONII.

R E M A R K S.

The Sulphur of Antimony mix'd with an Alkali, makes the Scorix of Process the fifth. These, boil'd in Water, make a sulphureous Lixivium; and from this, by the Acid, the Sulphur is precipitated. This has a mild emetic Quality. If this is rubbed upon Silver, it makes it of the Colour of Gold, and hence it is called *Auratum*. *Boerhaave*.

*Boerhaave*, we see, directs the Golden Sulphur of Antimony to be made with the Scorix of the Martial Regulus above described; but it is usually made with the Scorix of the common Regulus.

*Dr. Plummer* has, in the *Edinburgh Medical Essays*, given a different Method of preparing the Sulphur of Antimony, from *Angelus Sala*, which is somewhat like that of the first and second Process above, tho' not exactly the same.

Reduce Antimony to a gross Powder, or rather break it in small Pieces like Grains of Barley; separate the fine Dust by a Searce, and lay it aside; then put the small Pieces into a flat-bottom'd Glass, pouring in Aqua Regia, till it rises a Finger's Breadth above the Antimony. Let the Solution go on without Heat; and when there appears a sulphureous or pitchy Matter swimming on the Liquor, and the Antimony is covered with a yellowish Crust, gently pour the Aqua Regia into another Vessel, keeping back the sulphureous Matter, and wash the remaining Antimony several times with fresh Water, till it acquires no Acidity; then pour upon the Antimony Oil of Tartar *per deliquium*, to the Height of two Fingers; place the Vessel in warm Sand, and increase the Fire till the Liquor boils; pour out this Tincture, and add new Oil of Tartar, proceeding as before. To these Tinctures or Solutions, while warm, add distilled Vinegar, till the Effervescence ceases. Place the Vessel again on warm Sand, and a Powder will fall to the Bottom, which separate by a Filtre, and dry upon brown Paper. This Sulphur, or rather *Lac Sulphuris Antimonii*, *Tachenius* imagines, is the same that *Helmont* hints at in some obscure Expressions, where he says, the true Sulphur of Antimony very much resembles common Sulphur, only its Colour has more of a greenish Cast; with this Sulphur he prepares a Cinnabar, which, when six times sublimed, and infused in Wine, produces most surprisng Effects; and this Cinnabar seems to be the same with the *Mercurius Diaphoreticus*, which he mentions in the same Treatise. *Tachenius* also affirms, that he found by Experience this Sulphur to be an admirable Remedy in the Tympany: Of the same he prepares a Liniment, with two Simples not named, which, rubbed upon the Spine, Wrists, and Soles of the Feet, infallibly cures Tertian Agues. *Angelus Sala* likewise reckons this Sulphur a powerful Aperient, Discutient, and Sudorific. *Edinburgh Med. Ess. Vol. 1.*

The Sulphur of Antimony is prepared different ways; and, on account of its excellent Qualities, has been called by different Names. It is termed *Sulphur*, because it is inflammable like common Sulphur, and emits a fetid Smell; but it differs from it in this, that it always retains some reguline Parts, and is therefore specifically heavier. It is called *Golden Sulphur*, because Chymists have imagined, that it came near the Nature of the Sulphur of Gold; and because, when mixed with Silver over the Fire, it gives it a gold Colour. Chymists likewise name it *Sulphur Embryonatum*, procured from the Saturnine *Magnesia*, believing it to contain some Portion of the Sulphur of Gold got from Antimony, which they term *Magnesia Saturnina*. *Glauber* calls it *Panacea*, and the universally purging Sulphur; and it was given, for a long time, by *Cardilucius*, a famous German Chymist, by the Name of the *Lesser Centaury*. It is likewise the same Powder which has lately been so much in Vogue, by the Name of *Kermis Mineral*, or *Powder of the Carthusians*,



# A N T

*Carthusians*, because it was first disguised under that Title by the Monks of that Order; and it is the same with *Ruffel's Powder*, which has been so famous in *England*. All the Ways of preparing this Golden Sulphur may be reduced to two. The first and most common is, by first dissolving the Sulphur of Antimony by some alkaline Salt, and then precipitating it by distilled Vinegar, or some other Acid. The second is, by precipitating the same Sulphur of Antimony, at first by an Alkali, without the Help of an Acid.

## PROCESS VIII.

### *Crocus of ANTIMONY.*

Take of Antimony and Nitre, equal Parts, and reduce them to a very fine Powder. Set an iron Ladle on the Fire, and make it almost red-hot, and throw into it a little of this Powder, which will take Fire like Gun-powder. When all is grown quiet, throw in a little more, which will go off like the former, and so proceed till the whole Mixture is deflagrated. You will then have a Matter of a brown yellowish Colour, the Bottom of which will somewhat resemble Glass, upon which there will be some lighter Scoriae. Reduce the Whole to a fine Powder, and then wash it with hot Water, till the Calx, of the Colour just mentioned, remains insipid. The Waters this is washed with, being filtered, are pellucid; but, upon dropping a little Vinegar into them, become of an orange Colour, and let fall a fine Powder, very much like that of the preceding Process, but more subtil.

### R E M A R K S.

The Sulphur, Nitre, and black Antimony, make a sort of Gun-powder, which therefore goes off in the same manner. The metalline Part is by this means calcined into Glass and Scoriae, both which are violently emetic; and being infused in Wine, will give that the same Quality. The Change of the Colour is here remarkable. If this Operation is performed in a large Crucible, with an intense Fire, and a large Quantity of Ingredients, and the Matter is then made to flow, you will have an extemporaneous Glass at the Bottom; which, being separated from the Scoriae, has the same medicinal Effects with the laborious Preparation of Process 3.

*Geoffroy's* Method of making the *Crocus Metallorum* is exactly the same.

This is called also *Terra Sancta Rulandi*. When given in Substance, from two to five Grains, it is a strong Emetic, and from it is prepared the Emetic Wine, by infusing it to the Quantity of three Ounces in three Pints of White or Spanish Wine, for two or three Days, shaking the Vessels often. The clear Wine swimming at the Top is given for a Vomit, from one to four Ounces. *Geoffroy*.

I shall give an Account of another Sulphur of Antimony, under the Title of *Kermes Mineral*, or *Powder of the Carthusians*, in the latter Part of these Processes upon Antimony.

## PROCESS IX.

### *A milder Emetic of ANTIMONY.*

Mix one Part of Powder of Antimony with two of Nitre, and throw them by a little at a time into a red-hot Crucible, and you will have the same Detonation as in Process 8. but the Matter will be white, which, being thoroughly washed, gives you a white insipid Calx of Antimony. The Water with which it is washed, when it is filtered, is salt.

### R E M A R K S.

The Proportion of the Nitre here being increased, produces another Colour, though the Deflagration happens in the same manner. This Calx is much milder than the preceding, often exciting Nausea's only, and slight Vomiting, with a Discharge of a good deal of Saliva, and a thick Urine from the Stimulated Viscera. The Lixivium of this, upon dropping in of Vinegar, precipitates a white Calx, nearly of the same Virtues.

## PROCESS X.

### *A Diaphoretic nitrated ANTIMONY.*

Take of Antimony, one Part; of Nitre, three Parts; reduce them to Powder, throw a little of the Mixture into a red-hot Crucible, and it will deflagrate as before. Proceed in this manner till you have used all your Powder, taking a great deal of Care not to throw in any of it till the preceding Portion is perfectly deflagrated. Keep the Matter in the Fire for the Space of a quarter of an Hour, the Cru-

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cible all the time being perfectly red-hot; and then let it cool, and you will find in it a hard, white Mass. Take this out, powder it, and keep it under the Title of *Antimonium Diaphoreticum Nitratum*.

### R E M A R K S.

If you take half a Dram of this Medicine well prepared, it produces scarce any sensible Alteration, except that on account of the fixing Nitre which adheres to it, it moderately opens, and hence in acute Distempers does some Service. The Chymists call it a Diaphoretic, and think that the arsenical Poison of the Antimony is fix'd by means of the greater Quantity of Nitre. But in the Antimony there was at first nothing emetic, tho' you took it without any Preparation, or the Addition of any Nitre; and yet an equal Quantity of Nitre gave it an emetic Quality. As we may conclude safely therefore from Experiments, let us not give too much into Hypotheses. Let the Followers of *Basil Valentine* here learn, that there is no Need of so much Caution to free this Diaphoretic Antimony nicely from its fixing Nitre; for it neither produces Anxieties, Nauseas, or Vomiting, but stimulates kindly and safely. There is more to be feared from the Calx after washing.

## PROCESS XI.

### *The common DIAPHORETIC ANTIMONY, called SWEET ANTIMONY.*

Take the calcined Antimony of Process 10. reduce it to a fine Powder, pour hot Water upon it, and stir them about with a Stick, by which means the fixing Nitre, that adheres to it, will be dissolved. Let the white Calx subside, pour off the saline Liquor, put on more Water, and thus render the Calx perfectly sweet, so that there shall be no Nitre sensibly adhering to it; and then dry it, and it will be white, insipid, and heavy, and is the thing you want.

### R E M A R K S.

This is called Diaphoretic, for the Reason given in the preceding Process. But it is an inert, noxious Calx, without any thing active in it, as far as one can judge by its Effects, and wants every thing valuable that it had before. It acts only in a sensible manner, when it is mix'd with half as much of a Purgative; for then it truly quickens its Operation, as appears by undoubted Experiments in the *Pulvis Cornachini*: But otherwise I dissuade the Use of it. How surprisingly are the Colours chang'd in the Antimony, by simply varying the Proportion of the Nitre in the Calcination? And what a surprising Alteration do we find in the Strength?

*Boerhaave*, we see, has a much better Opinion of Diaphoretic Antimony before the Nitre is wash'd out of it, than afterwards; and in this I believe he is right. But his representing the common *Diaphoretic Antimony* as noxious, seems to favour much of Whim, or Love of Contradiction; for I never met with an Instance myself of any ill Consequences from the taking it, nor ever heard of any one that did.

*Geoffroy's* Character of Diaphoretic Antimony is, that it is an excellent Diaphoretic, when given inwardly in a sufficient Dose, resolving Obstructions, attenuating thick and viscid Fluids, and forcing them, either sensibly or insensibly, thro' the Pores of the Skin. It is prescribed with Success in all malignant Diseases; in a Pleurisy, Erysipelas, and Diseases of the Skin; and it makes an Ingredient in the *Pulvis Cornachini*, and *Pulvis Febrifugus* of *Morton*. *Vigani* says, it has no more Virtues than Tobacco-pipe Clay.

## PROCESS XII.

### *Nitrum Striatum. Antimoniated Nitre.*

Take the Waters with which the preceding Calx was washed, filtre them, put the Lixivium into a clean Urinal, and exhale to a Dryness, keeping it constantly stirring to the End. By this means you will have a white saline Matter, of a singular, and not disagreeable Taste, not like that of Nitre, but softer, which keep under the Title of *Nitrum Striatum*.

### R E M A R K S.

Hence we learn, that Nitre, by Detonation with Antimony, is converted into a new Salt. This Salt is gently aperient, and in a phlogistic Disposition of the Blood, agreeably dissolves the inflammatory Density without Violence, and happily disposes to Perspiration, gentle Sweats, and a Discharge by Urine; and hence cools, and proves of Service in the Small-pox, Measles, Pleurisy, and Peripneumony. How unseasonably therefore is this Water thrown away, as being of a hurtful Nature!

### P R O.



## P R O C E S S XIII.

*Fix'd Sulphur of ANTIMONY.*

Into the filtered nitrous Liquor of Process II. put into a Urinal, whilst hot, and very pellucid, drop some very strong distilled Vinegar, and it instantly grows milky, and precipitates an exceeding white, and very fine Powder. Shake them together, and proceed to drop in more; shake them again, and repeat this till the Liquor will not be affected by the Vinegar any longer. Let the Vessel stand quiet till all the Powder is subsided to the Bottom; pour off the Liquor into a clean Vessel; wash the Powder with Water till it is perfectly insipid, and then dry it, and you will have a very white, insipid, fine Powder, which is called *Sulphur fixum Antimonii*.

## R E M A R K S.

In the Deflagration of the Antimony with the Nitre, the Sulphur of the former unites with the latter, as in Process 8. And the Sulphur, thus resolv'd and combin'd with the Nitre, is dissolv'd with it in Water; but as soon as ever an Acid comes to it, it precipitates from the Nitre, as we see here upon the Infillation of Vinegar, and at the same time the Acid unites with the Nitre without any Sign of an Effervescence. The Powder then that falls to the Bottom, being wash'd, is true Sulphur of Antimony. *Tachenius* extols this Powder taken in Vinegar, as the most powerful anti-pestilential Medicine. But for my part, I confess, I think it ought to be look'd upon as an absolutely inert Calx, noxious on account of its Weight and Indissolubility, or at least doing no manner of Good. The Vinegar, however, taken along with it, I acknowledge to be particularly serviceable in the Case mentioned. In this manner are the Chymists too apt to cry up the Preparations of their Art, particularly those from Antimony, and then especially when they do not produce any sensible Effects. But that acetose, nitrous Liquor, that swims above the precipitated Powder, has the most efficacious Virtues in acute febrile Disorders, both on account of the Vinegar, and the soft Nitre, which is now freed from the inactive Sulphur: Thus, in the Chymical Art, is the best Part frequently thrown away. From all these Instances we perceive, how surprisingly Sulphur is dissolved, lies conceal'd, and is resuscitated in various Forms, and various Colours.

## P R O C E S S XIV.

*The Distillation of ANTIMONY into an icy Butter, and Cinnabar.*

Take of corrosive Sublimate of Mercury, two Pounds; rub it in a warm dry glass Mortar with a glass Pestil, till it is reduced to a very fine Powder. Then take of the best Antimony, one Pound, which also powder separately very fine. Mix these as nicely as possible in a glass Mortar, and they will grow warm, and emit a Fume, of which beware with the utmost Caution. Have by you at the same time a clean, dry, glass Retort, that will hold three or four times as much as your Powder, which should have a large Neck, and be cut off so low, that the Mouth may be very wide. Dry the Powder very well, and then put it into the Retort made hot and dry likewise, taking care that nothing black adheres to the Inside of the Neck. Place the Retort thus charg'd in a Sand Furnace, so contriv'd for this Purpose, that the Belly of the Retort may almost touch the Bottom of the Pot, and yet its Neck may lie in a declining Position. This being done, apply a large Receiver, so cut that the Mouth of it may exactly admit the Neck of the Retort, and cover the Retort with Sand. Let the whole Apparatus stand under a Chimney that will carry up the Fumes without dispersing them; make a little Fire, and when the Retort is grown moderately hot, with a Paste made of Clay and Lime lute the Joint; then raise your Fire very gradually, and in the first place the Receiver will begin to be clouded, and there will be a small Quantity of a Liquor collected in it. Carefully keep up your Fire in this Degree, till nothing more of this Liquid will come over: When this ceases, increase your Fire, but very cautiously, till you perceive a pinguious Matter rise into the Neck of the Retort, and distil into the Receiver, coagulating whilst it passes from one to the other; keep up this Fire to the same Height, and there will be a white icy Matter concreted in the Neck of the Retort. On both Sides of it therefore lay some live Coals, first at a Distance, and afterwards nearer and nearer, till the Neck of the Retort is grown as hot as the Belly of it; and then the Matter will melt, and drop into the Receiver. Proceed with this Degree, and then very gently increase it till no more Butter rises into the Neck, and all that has risen, is distill'd into the Receiver; then remove the Receiver, taking all possible Care, that none of the Vapour

comes to your Lungs; and presently stopping it, set it by. Lute on another properly fitted for this Purpose, and increase your Fire, and you will have a Matter come off, of a yellow, red, blackish, and various other Colours; upon which raise your Fire to the highest Degree, and at last place Fire upon the Sand at the Top of the Retort, that the Sand may be almost red-hot, and so leave them for the Space of two Hours. Let the Whole spontaneously cool, and then remove the Receiver, in which you will have some Quantity of crude Mercury, and a Butter rendered impure by the sulphureous Fumes of the Sulphur of the Antimony. In the Neck of the Retort too you will find a Matter of various Colours made up of the Mercury, Sulphur, and Butter; and upon breaking the Retort, there will be some antimonial Forces at the Bottom; but at the Beginning of the Neck, you will find a dense, hard, opaque, and very heavy Mass, the Surface of which, that is contiguous with the Glass, will have a shining Appearance, whilst the other is rough, and which, being reduced to Powder, is true Cinnabar of Antimony, and is sufficiently costly. In this Process there is need of a great deal of Patience and Caution; for if the Fumes should insinuate themselves through the cracked Glass, or Lute, or any other way, and be received into the Lungs, by their caustic Quality, they would prove fatal.

## R E M A R K S.

If we consider the Nature of Antimony, and of Mercury Sublimate, the Chymical Ratio of this Process is easily understood. Whilst the Fire acts on the Sublimate, the Aqua Regia that is in it, unites itself with the mercurial, metallic, reguline Part of the Antimony; and thus leaving the Mercury, with which it was combined before, that returns to its original Form, and runs at the Bottom of the Retort: Hence the Regulus is sublimed with the Spirit of Salt, and becomes a volatile Vitriol of Antimony, call'd a Butter, consisting of an exceeding pure Regulus, and Spirit of Sea-salt, combined together. When these are separated and sublimed, then the Sulphur of the Antimony discharged from the reguline Part, and the crude Mercury freed from its Acid, remain at the Bottom of the Retort, and by the Action of the Fire become united together, and sublime into Cinnabar. This Butter of Antimony is the most speedy Caustic we are acquainted with, producing an Eschar the soonest of any thing, which separates in a very short time; for the most part, the same Day it is made. It easily dissolves with the Moisture of the Air, and then it loses its Pellucidity, grows white, and precipitates a very white Powder. It dissolves with Heat, but in the Cold returns again to its icy Form. The Variety of Colours, in this Process, arises from the Sulphur of Antimony. If instead of crude Antimony you take the very pure Regulus of Process 6. and proceed exactly in the same manner, you obtain only a Butter, and a Mercury, both exceedingly pure, because then there is no Sulphur; and the Acid being intirely received into the Regulus, the Mercury returns in its greatest Purity. Here then we see what a singular Effect the Spirit of Salt, which adhered to the Sublimate, has, whilst it sublimes the fix'd Regulus of Antimony in a Sand Heat: But it has the very same upon all metalline Bodies, Gold itself not excepted. How wonderful a Body then is Sea-salt? The Chymist certainly can never too much employ his Art upon it, as he will always discover something that will make him Amends for his Trouble.

*Geoffroy* says, the Cinnabar, which sticks in the Neck of the Retort, is powdered, mixed with its own *Caput Mortuum*, then sublimed by a gentle Fire. It is of a dark-red Colour, and is recommended in all Diseases of the Head, especially in Epilepsies. It is likewise used in Venereal Cases, and operates by Sweat. The Dose is from six to fifteen Grains.

Cinnabar of Antimony may also be extracted from antimonial Mixtures, and from several other Preparations of Mercury, besides the corrosive Sublimate; and among those there is not one from which we may extract so much, or with so great Ease, as from an equal Mixture of crude Antimony, and *Aethiops Mineral*, prepared by Calcination; because this Preparation of Mercury is, as it were, a Cinnabar half made, which readily unites itself to the Sulphur of Antimony, and which rises with it to the Neck of the Retort: For this Operation 'tis necessary, that the Neck of the Retort be considerably long.

Cinnabar of Antimony is generally much more esteemed as a Medicine, than the common Cinnabar. Yet after examining the Effects of both, upon many Occasions, I have found them alike, only that of the Antimony, when exhibited in a large Dose, sometimes excites a *Nausea*. Care must be taken, that a Drop of the Butter of Antimony has not fallen upon this Cinnabar, during the Operation; for in that Case, it may become somewhat emetic.

Cinnabars often produce good Effects in such Disorders of the Brain, as are caused by a gross and corrupted Phlegm, which intercepts



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intercepts the Motions of the Spirits; because these Medicines, mounting to the Brain in Consequence of their volatile Nature, attenuate and colliquate the pituitous Humour, which afterwards finds proper ways for dissipating itself. But these Remedies must be exhibited in small Doses; for the excessive Colliquation of the Humours occasioned by them, either when administered in large Doses, or too often, frequently brings on more terrible Disorders than those they were design'd to remove.

Cinnabars are also used in Asthmas; and in these Cases they act not only by their Sulphur, which is well calculated for promoting Respiration, but also by the Mercury contained in them, which contributing to rarefy and dissolve the Obstructions of the Lungs and Diaphragm, restores to the Fibres of these Parts a Power of dilating and extending themselves. *Lemery Cours de Chimie.*

### P R O C E S S X V.

*The Distillation of Butter of ANTIMONY into a Liquid Oil.*

Take the Butter of Antimony of the preceding Process broken to Pieces with some glass Instrument, the Neck of a Phial, for Instance, and put it into a clean glass Retort, taking care that it does not dissolve in the Air, nor offend you with its Vapour. With a gentle Fire, gradually increased, draw it off into a dry clean Receiver, raising it till all the Butter is come over, which at last will require a Heat considerably intense, and you will have it nearly in the Form of a liquid Oil of Antimony. If you distil this Oil a third time, it will still become more limpid; and if it is rightly secured in a close Vessel, will continue in this Condition. May not this, which is a pretty surprising Experiment, illustrate some obscure Places in *Paracelsus*?

### R E M A R K S.

This beautiful Experiment gives us a great Insight into the Method of rendering Metals volatile, and converting them into the true Form of a liquid Oil, and discovers to us the wonderful Power of Sea Salt in giving Volatility to Metals, and its surprising Quality, whilst it remains united with Antimony; for so long it is extremely poisonous, sending forth a truly arsenical Vapour; and yet, when it is separated from the Antimony again, it becomes quite innocent. Is there not some room therefore to suspect, that there lies hid here something of an alchemical Virtue? Certainly it renders all Metals distillable in a Retort, without any Alteration in their Weight, and is recovered from them again almost in its full Power. This Oil is extremely caustic, and supplies skilful Surgeons with the most speedy Escharotic. This Process has been ranked amongst the profoundest Arcana. If you have a mind therefore to try it, whatever you do, be sure take care of the Fumes: I knew a very worthy and famous Man, to whom they proved fatal. Again therefore let me caution you to beware of them.

### P R O C E S S X V I.

*Mercurius Vitæ of ANTIMONY, and its REGULUS, otherwise called PULVIS ALGAROTH, from Victorius Algaroth, its Inventor.*

Put some Water in a clean clear Glass, into which let fall one Drop of the Oil of Antimony of the preceding Process, melted and depurated. You will observe the very Instant it comes to the Water, from pellucid, it becomes white, and falls to the Bottom. Proceed to drop in the Oil, till a Quantity of it equal to One-fourth of the Water, is instilled into it, and it is all converted into an exceeding heavy white Powder, which is collected at the Bottom. Stir them well together with a glass Rod, so as to mix them as thoroughly as is possible; and when they have stood quiet for some time, there is a very limpid acid Liquor swimming at the Top, which gently pour off. Upon the Powder then put more Water, and when by this means you have washed it till it is perfectly insipid, dry it with a gentle Fire, and you have a white, insipid, heavy Powder.

### R E M A R K S.

Thus we see, that the Acid of Sea Salt adheres to the Antimony so long only as it continues exceedingly strong, receding from it as soon as ever it comes to be lowered with the least Quantity of Water, and then is attracted into the Water. This Powder, given to two or three Grains, is a violent Emetic; and from the fatal Effects it has sometimes had, has been called *Mercurius Mortis*. If it is laid upon Glass, and exposed for a good while to a gentle Fire, being kept constantly stirring all the time, it loses its Strength, and becomes less active, and then is thought by many Persons to be the *Arcanum* of *Riverius*. This Powder contains nothing of Mercury in it, whatever *Billichius* says to the contrary in his *Paradoxa Chymiatricæ*, but the purest Regulus of Antimony. I took eleven Ounces of this *Mercurius Vitæ*, pre-

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pared with my own Hands, and, putting it in a strong large Crucible, placed it in a Wind Furnace; and by this means the Powder was melted as soon as ever the Crucible came to be thoroughly red-hot. When it was perfectly in Fusion, I poured it out into a melting Cone, and had ten Ounces of a shining Regulus, but a little upon the greyish, consisting of Spicula surprisingly disposed amongst each other.

### P R O C E S S X V I I.

*Philosophic Spirit of VITRIOL.*

Take of the limpid acid Liquor of the preceding Process, filtre it, and inspissate it to one half, and you will have the *Spiritus Vitrioli Philosophicus*.

### R E M A R K S.

This very limpid, and gratefully acid Liquor, has the Taste of Spirit of Sea Salt, and has the very same Effect in every Chymical and Medicinal Operation. Nor is there any thing in the least emetic in it, but it is an exceeding pure Spirit of Sea Salt, which through all the Operations it has undergone, with the Sublimate of Mercury, the Antimony, its Butter, Oil, and the Water, has still retained its proper Nature, nor is so much as tainted by any Admixture, but has an admirable salutary Acidity. It is improperly therefore called a *Vitriolic Liquor*; for it contains nothing at all of Vitriol; but with the alkaline Salt of Tartar, it regenerates Sea Salt. As I am a great Admirer of Sea Salt, on account of its surprising Effects in Chymical Operations, I had a mind to examine into the Nature of this Production of it. To this Purpose I took a large Quantity of this Liquor, and distilled it in a tall, clean, glass Cucurbit, and the Liquor came off exceedingly pure, nor left any thing at all at the Bottom. Hence therefore I learned, that the Water, by simple Affusion, in an Instant extracted the Spirit of Salt, in such a manner, from the Butter of Antimony, that nothing at all of the Antimony remained united with it, though it before rose out of the Retort combined with the Regulus, in form of a Butter. I then distilled all the Liquor again in a tall Cucurbit, and afterwards once more with a gentle Fire of one hundred Degrees, and there then came off a pure Water, which had not the least Taste of an Acid: This Degree of Heat I kept up, till nothing more would rise. The remaining Liquor I urged with a Fire a very little stronger, so that there rose a Liquor that was somewhat acidish; I carefully separated what was thus elevated, and kept it under the Title of *An acidish Phlegm of Philosophic Spirit of Vitriol*: This is of considerable Service, where acidish Medicines are wanted. The Liquor that was left, I distilled with a Cucurbit, and I found it a very acid, limpid, pinguous Spirit of Sea Salt, that fum'd a little. Thus then I learned the wonderful Nature of this Salt, its easy Combination, and easy Separation.

### P R O C E S S X V I I I.

*Van Helmont's Flowers of ANTIMONY.*

1. Take of Antimony, dissolved in Aqua Regia, according to Process the first, one Pound; put it into a low, open, glass Vessel, and expose it for a good while to a gentle Fire, keeping it continually stirring with a glass Rod, till the Matter is become very dry; then in a glass Mortar, and with a glass Pestil, reduce it to a very fine Powder; to which add as much of the driest Sal Ammoniac, as there is of the Calx, and then rub them together, the longer the better, that they may be mixed as intimately as is possible. Put this Mixture into a low glass Cucurbit with a wide Mouth; fit on a very large clean Alembic, and lute the Joint with a Lute made of Lin-seed Flower. Place the Cucurbit in a Sand Furnace, in such a manner as to stand a little leaning forwards, that the Water in the Sublimation may easily pass out of the Alembic into the Receiver. Then cover the Cucurbit with Sand up to the Rim of the Alembic, raise a gentle Fire, and there will come over a limpid, acid Water, which, by increasing your Fire a little, will be all expell'd. Gently raise your Fire, and something white will begin to rise, upon which keep it up to such a Degree, that you can just bear your Hand upon the Head; and then Substances of all kinds of Colours will ascend into the Alembic. Continue the Fire in this Degree, for the Space of eight Hours, and you will be entertained with the Beauty of the Appearance. Let the Whole cool, very gently take out the Cucurbit, clean both this and the Alembic from the external Dirt, and then carefully remove the Head, taking care of the first Vapour, and you will find almost all the Antimony sublimed with the Sal Ammoniac into a variegated Matter. Take this out presently, and put it into a dry, hot, glass Vessel, under the Title of *Helmont's Salt Flowers of Antimony*. These, if they are taken in the smallest Quantity, are a very powerful Emetic. At the Bottom you



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will find something that may be sublimed with fresh Sal Ammoniac.

- Put these Flowers into Water, and stir them well about, and the Water will grow milky. Let it stand quiet, and settle, and at Top there will swim a saline, ammoniacal Liquor, which pour off. Wash the Flowers in this manner till they are quite insipid, and then dry them with a gentle Heat, and you will have a very fine, red, insipid Powder, which is greatly emetic. These are called *Van Helmont's sweet emetic Flowers of Antimony*. If the Lixivia these are wash'd with, are inspissated, you have a Sal Ammoniac fit for the same Use again.

## R E M A R K S.

Here we have an Instance of the Manner in which *Paracelsus* thought a Chymical Death and Resuscitation, as he express'd himself, opened Metals, and by this means made them exert themselves efficaciously in the human Body. Here we see a fixed Body become volatile; and here we observe the Production of all Sorts of Colours. Thus the black Powder of Antimony, or Head of the Crow, being reduced to a white Calx, becomes the Neck of a Swan; and afterwards acquiring a great Variety of beautiful Colours, is changed to the Tail of a Peacock: But it is emetic, under all these Alterations.

## P R O C E S S XIX.

*Van Helmont's fixed Diaphoretic Flowers of ANTIMONY.*

Take of the sweet Flowers of the preceding Process, one Part; of the purest and driest Nitre, three Parts; and rub them well for a good while in a glass Mortar. At the same time, have a clean Crucible standing in the Fire red-hot, into which throw a little of this Powder, first heated, and it will deflagrate, but very weakly. When every thing is quiet, throw in a little more, and so proceed till you have made use of all your Powder. When the Matter in the Crucible is grown cold, it will be of a white Colour, inclining to yellow. Take this out carefully, pound it, wash it with Water, and dry it, and you will have a fine white Powder. Put this into a China Dish, pour *Alcohol* upon it, set it on fire, and whilst it is burning, keep the Powder continually stirring about with a Tobacco-pipe. When the *Alcohol* is burnt out, there will remain *Van Helmont's* Diaphoretic, thirty-six Grains of which are said, by promoting Sweat, to cure all intermittent, and continued Fevers.

## R E M A R K S.

Here we have an Instance of fixing a volatile Body, for Chymical Uses. This Diaphoretic its Author greatly extols. I have made it myself, however, and tried it frequently; but I could never find any such extraordinary Virtues in it, as he mentions in his *Aurora Medicinæ*, written in *Dutch*; and hence I am inclined to believe, that, in other Cases likewise, he has indulged himself a little too much in extolling his own Preparations.

## P R O C E S S XX.

*The Purgans Diacelatesson of Van Helmont with fixed Flowers of ANTIMONY.*

Take of the fixed Diaphoretic Antimony of the preceding Process, eighteen Grains; of Resin of Scammony, sixteen Grains; of Cream of Tartar, seven Grains; mix them, and reduce them to a fine Powder: Or, take of the fixed Diaphoretic Antimony, nine Grains; of Resin of Scammony, nine Grains; of Cream of Tartar, three Grains; and make them into a Powder. This is the Description of the Purge given us by *Helmont*, which *Paracelsus* called the *Diacelatesson*: The first is the greatest, the last the least Dose for an Adult. It must be taken without any Acid, and may be stopp'd by an Acid, if it operates too violently. It must be given in Intermittents in such a manner, that it may finish its Operation as nearly as possible by the Time the Fit is expected. The Author says, it always cures Quartans before the fourth Day, and proves efficacious in all intermittent, and continued Fevers. *Auror. Medicin.* published in *Dutch*, p. 187, 188, 289.

## R E M A R K S.

Here we have another Chymical Arcanum, under the Name of a *Purging Diacelatesson*, as you may find in the *Dutch* Edition just cited. Concerning this, *Van Helmont* says, that it radically cures the Gout and Fevers, that it heals Ulcers of the Larynx, Bladder, and Œsophagus, and that it purges the Body only so long as it is not sound, and no longer. See the *Latin* Edition, p. 775, 776. where he says the Dose is eight Grains; so that the Account in the *Dutch* Edition does not agree with this. But I am always ready to suspect, that this great Man, by a Subtlety of Reasoning, extended the Virtues of these Arcana further than could be fairly warrant-

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ed by Experiment. These things I have prepared myself, and, upon making use of them, have seen very good Effects from them, but not such superlative ones as he insinuates. *Boerhaave.*

## From Geoffroy. P R O C E S S XXI.

*The Universal Antimonial Panacea is prepared from the Butter of ANTIMONY in this manner:*

Take of Butter of Antimony, half a Pound; Crystals of Tartar, well powdered, a Pound; pour on them a Pint of common Water in a large Matrafs; mix, and boil them in a Sand-heat for eight Hours; and while the Liquor is hot, drop into it a Pound of Oil of Tartar *per Deliquium*. After the Effervescence is over, strain the Whole through Cap-paper, and evaporate it to Dryness, in a glass Vessel, over a slow Fire. A Salt will remain at the Bottom, which is to be set in a cool Cellar, till it runs into a limpid Liquor, which must be carefully separated from the Fæces. It purges gently upward and downward, being given from eight to twenty Drops, in a proper Vehicle. It differs from Emetic Tartar only in running *per Deliquium*.

## P R O C E S S XXII.

### EMETIC TARTAR.

Take Liver of Antimony, Crystals, and Cream of Tartar, of each equal Parts; boil them in a sufficient Quantity of common Water, for six or eight Hours; then strain the Liquor, and evaporate it to Dryness. The dry Mass is Emetic Tartar, which is given as a Vomit from two to six Grains.

This is by far the best Emetic, that can be prepared from Antimony, and may be given in any Form; and as the Doses of it are easily adjusted, they may be safely increased or diminished in any requisite Degree, that the Physician shall judge the Strength of the Patient, or Nature of the Disease, to require; whereas the same Quantity of the Emetic Wine may be more or less emetic, according to its Acidity, or other Circumstances. In making the Liver of Antimony, some add to the Antimony and Nitre, decrepitated *Sal Ammoniac*, and thus make what is called the *Opalin*, or *Ruby-coloured Magnesia of Antimony*, from its red Colour, which is a much weaker Emetic than the Liver of Antimony, and does not cause Vomiting in Horses, and other Quadrupeds, but only makes them sweat, or increases Perspiration. It is given to such Brutes from one to three Ounces, once every Day, for several Weeks together, to fatten them, and cure their cutaneous Diseases, or other Indispositions. *Crocus Metallorum* is likewise used to take away Spots in the Eyes, and to cure Ulcers, Itchings, and *Pfora* of the *Cornea Adnata*, or Eye-lids.

## P R O C E S S XXIII.

### BEZOAR MINERAL.

Antimony has neither any emetic, or cathartic Quality, (all its Effects being to increase insensible Perspiration, or provoke Sweat) if its Sulphur be fixed by mineral Acids; as is seen in the Preparation of Bezoar Mineral, which is in this manner:

Put into a Retort any Quantity of Butter of Antimony, and drop upon it Spirit of Nitre, till the Effervescence ceases. Having then digested them for twelve Hours, draw off the Spirit in a Sand-heat. On the remaining Mass pour the same Quantity of fresh Spirit, and distil as before. Then calcine the remaining Mass in a Crucible, till it ceases to emit Fumes; wash the Powder in warm Water, and then dry it.

This Preparation is commended by *Van Helmont* in the Plague, and other malignant and contagious Diseases, as a most excellent Diaphoretic, given from half a Scruple to half a Dram.

It may be made a shorter way, by pouring four Ounces of *Aqua Regia* on an Ounce of *Regulus of Antimony*, and digesting them for some Days in a gentle Heat, shaking the Vessel every now-and-then, till all the *Regulus* is turned to a very white Powder, which is to be washed and edulcorated by a large Quantity of common Water.

Various Tinctures are drawn from Antimony, and Authors are of various Opinions about them. We shall give one simple, and one more compounded Tincture, as Specimens of the rest.

## P R O C E S S XXIV.

Take of Salt of Tartar, eight Ounces; melt it in an ignited Crucible; and then immediately throw into it, by Spoonfuls, six Ounces of crude Antimony. Cover the Crucible, and let the Whole be calcined in a strong Fire for half an Hour; afterwards throw the Mass into a Brass Mortar, and, as soon as it hardens, reduce it to Powder. Throw this Powder into a large Matrafs, and pour upon it as much



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much rectified Spirit of Wine, as will cover it to the Height of four Fingers Breadth. Then stopping the Vessel very close, digest for several Days, till the Spirit is tinged with a deep-red Colour. Afterwards filtre the Tincture, and keep it for Use.

This Tincture excites Sweat, seldom excites a Nausea; sometimes purges gently, and proves diuretic. It is recommended in Hysterical Affections and Melancholy; to break the thick Parts of the Blood, in Apoplexies and Palsies; and to open Obstructions in the Viscera, in malignant Fevers. The Dose is from four to twenty, forty, or even sixty Drops, in a proper Vehicle.

### P R O C E S S XXV.

The more compound Tincture, much celebrated by the Name of *Lilium*, or *Tinctura Lili Paracelsi*, is made from Metallic Reguli, in this manner:

Take of thin Copper-plates, an Ounce; ignite them in a red-hot Crucible; and then throw in upon them half an Ounce of powdered Martial Regulus of Antimony; and, the Whole being presently melted, add four Ounces of Tin, stirring the Mass now-and-then with an iron Rod; and when it is in perfect Fusion, throw it into a well-greased Cone, and it will soon harden into a reguline metallic Mass. This Mass, being reduced to Powder, is to be mixed with a Pound and half of Nitre, and half an Ounce of powdered Charcoal. Throw this Mixture by Spoonfuls into a red-hot Crucible; and after each Projection, cover the Crucible, till the Fulmination is over. Calcine the Whole in a very strong Fire, for two or three Hours, stirring it at times with an iron Spatula. Then pour it into a brass or iron Mortar, and, before it has time to cool, powder it well, and immediately throw it into a proper Matraass, and pour upon it as much Spirit of Wine, as will stand four Fingers Breadth above it. Digest in a Sand-heat for fifteen Days, and the Tincture will be what is called *Tinctura Lili*, or rather, *Tinctura Metallorum*, which is both sudorific and diuretic; given from ten to an hundred Drops, in a convenient Vehicle.

It is much commended in malignant Fevers, Apoplexy, Palsy, Scab, Rheumatism, Scurvy, Dropsy, and a Suppression of the Menstrues.

### P R O C E S S XXVI.

From the *Martial Regulus* of Antimony, the Silver Flowers, known by the Name of *Antimonial Snow*, are prepared in this manner:

Take of the *Martial Regulus*, a Pound; put it into a large earthen Pot, placed in the midst of burning Charcoal: Let a Cover be perforated in the Middle, and so placed, as that there may be the Breadth of two Fingers between it and the reguline Powder; and place another Cover over the Mouth of the Pot. Give a very strong Degree of Fire for an Hour, till the Regulus is perfectly melted. Then, the Vessels being suffered to cool, the Silver Flowers are found in Form of small *Spicula*, in the void Space between the first Cover and the Regulus.

These Flowers cause a Diaphoresis and Sweat, and are therefore prescribed in malignant Fevers, and other Diseases where a Diaphoresis is required. They often cure intermitting Fevers, given from ten to forty Grains, a little before the Fit.

### P R O C E S S XXVII.

On the 19th of December 1700. Mr. Charas laid the following Method of drawing an acid Liquor from Antimony before the Academy:

He reduces the Mineral Antimony to a Powder, mixes it with three times the Quantity of common Sand, and distills it, by a large Fire, from a Retort, into a capacious Receiver half full of River-water, which he afterwards rectifies by a second Distillation. It often happens, that Antimony in this Process yields an acid Liquor, and often none at all. Mr. Charas maintains, that the Success of the Process depends upon the Application of the precise Degrees of Fire proper for this Operation; and that, when these very Degrees are applied, the Experiment must necessarily hold.

This Process is described in a Treatise of Antimony, written by *John Agricola*, and printed at *Leipsic* 1639. I have often tried this Experiment, but I can't say, that I have found Mr. Charas's Assertion true in its whole Extent. Certain it is, that in this Process an Acid is produced; but this Acid is by no means yielded by the Antimony, but by an Earth of a whitish Colour, and a clayey Nature, which is almost always found in Mineral Antimony, and which, by a strong Distillation, yields an acid Spirit, as other Clay, under the like Circumstances, generally does; but if we take pure Mineral Antimony, with-

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out any Mixture of this whitish Earth, or even the best common Antimony without any *Scoriae* or Dross, we cannot possibly extract an Acid from it, whatever Degrees of Fire are applied to it. This Acid therefore cannot be said to be a Vinegar of Antimony.

For my own part, I am persuaded, that the Acid of Antimony does not differ from the Spirit of common Sulphur; and as Antimony abounds with a burning Sulphur, which resembles the common Sulphur, I believe that the Acid yielded by it is nothing more than the Spirit of that burning Sulphur, or common Sulphur, contained in the Antimony; and that the reguline Part, which alone is the true Antimony, contributes nothing to the Production of this Acid.

I do not advance this at random, and without a sufficient Reason; for, having extracted the Acid of Antimony without Addition in different Manners, and with uncommon Pains, I have employed it in several Processes; but always found, that it bore a perfect Resemblance to the Spirit of common Sulphur; that is, it produced no Effect but what was produced precisely in the same manner, by the Spirit of Sulphur.

One of the Methods I used to extract this Acid, is as follows: I reduced the Antimony to a small Powder; I put it into an unvarnished flat earthen Pan, about a Foot in Diameter; I covered this Pan with an earthen Pot without a Bottom. I placed three Aludels upon this earthen Pot, and covered the Mouth of the uppermost with a large glass Bell, the Edges of which were supported about three or four Lines above a Reservoir of warm Water, which by its Steams moisten'd the internal Side of the Bell; and the Water, which ran down from its Sides, fell back again into the Reservoir.

I had made a Hole about a Finger's Breadth in Diameter, about the Middle of the earthen Pot, through which I had pass'd the Stalk of an iron Spoon, in order to stir the Antimony under the Bell, just as when one calcines Antimony, in order to transform it into Glass. By this means I had Flowers of Antimony in the Aludels, a small Quantity of Acid in the Reservoir of Water under the glass Bell, and calcined Antimony in the Pan under the earthen Pot.

In this Process, a small Quantity of Acid is indeed drawn, but one may be sure of its being unmix'd. It also very often happens, even when this Method is follow'd, that no Acid at all is yielded. But this depends, first, upon the Accuracy of the Chymist; secondly, and principally, upon the Temperature of the Air, and the State of the Weather, at the Time the Process is carrying on. The colder and moister the Air is, the greater Quantity of Acid is yielded; but when it is hot and dry, none at all can be obtained. Upon the Whole, the Chymist must follow all the Circumstances and Directions necessary to be observed in extracting the Spirit of Sulphur *per Campanam*, and take it for granted, that this Process is still more difficult than that which yields the Spirit of common Sulphur without Addition. *Mem. de l'Acad. Royale 1700. by Mr. Homberg.*

### P R O C E S S XXVIII.

KERMES MINERAL, or PULVIS CARTHUSIANORUM,  
*Poudre des Chartreux.*

Take of Antimony, four Pounds; Solution of fixed Nitre, one Pound; Rain-water, three Pounds; and boil them for two Hours. Then the boiling Decoction is passed through Cap-paper, and set in a quiet Place for twenty-four Hours, till a yellowish, or Saffron-coloured Powder sinks to the Bottom of the Vessel, the Liquor remaining clear. This Liquor being poured off by Inclination, the Powder is first washed by frequent Affusions of warm Water, till it is deprived of all its Salts; and then about four Ounces of Spirit of Wine are burnt upon it, and it is afterwards dried, and kept for Use.

This Powder is looked upon as a kind of *Panacea*, or universal Remedy. It sometimes excites Vomiting, especially when it meets with any Acid in the Stomach, and is sometimes cathartic, diaphoretic, and sudorific, according as it is determined by the Disposition of the Patient to act upon any one Humour more than on another. It is given from one to four Grains, or sometimes, when it is designed only to attenuate and divide any Viscidities in the Fluids, in the Quantity of half a Grain, repeated every three, four, or six Hours. In acute Fevers, where there is a great Crudity and Spissitude of the Humours, it is given in small Doses with Success. It changes the crude and serous Evacuations by Stool, into a more bilious Consistence, by attenuating the viscid Bile, and so disposing it to pass off by Stool. It is often given with Success in the Beginning of the Small-pox, and Measles, when they are apprehended to be of a bad Kind, at small Doses mixed with Bezoardic Powders, or Absorbents, such as Crabs-eyes, red Coral, Pearl, Egg-shells, Crabs-claws, and the like; for thus it excites a Spitting and Diaphoresis, removes Anxieties, corrects the Lympha, and coagulated Serum, and raises such an Effervescence in the Blood as tends to purify it. *Glauber* confirms these Virtues by the Examples of seven Children in the Small-pox. *Frederic Hoffman* commends the Use of this Powder



Powder in stubborn autumnal Agues, because it powerfully opens Obstructions, particularly of the Liver, by which these Fevers are produced, especially when taken in the Quantity of a Grain, mixed with detergent anti-febrile Salts; such as the Salt of Wormwood, the febrifugous Salt of *Sylvius*, vitriolated Tartar, and the like. *Schroder* ordered it in the Quantity of half a Grain, or a Grain, three or four times a Day, in the intermitting Fevers of Children; and commends it very much in correcting the Acrimony of the Serum, and especially that of Tears, which give Pains in the Eyes, and produce very bad Ophthalmias. The same Author mentions a Woman labouring under scorbutic Symptoms and Defluxions of so acrid a Kind as to corrode her Lungs, and bring on a Spitting of Blood, who, by using this Sulphur of Antimony in very small Quantities, corrected the Acrimony, and stopped the Motion, of this Serum; and thereby prevented the Growth of a Disease, which must otherwise have been of very fatal Consequence. *Hoffman* says, it is a most effectual Remedy in such Chronical Diseases as arise from long Obstructions of the Viscera. In a Dropsy, for Instance, it is very properly mixed with Filings or Crocus of Steel and Nitre; in Epilepsies, with all the Cinnabars; in the Scurvy, with the *Arcanum Duplicatum*; in Dysenteries, with the *Confessio de Hyacintho*; in a Dysury, or Complaints of the Stone, with white Nettle, or Pellitory-water; and even in Pleuritis and Peripneumonias, he frequently gives it, in the Quantity of three or four Grains, in a Glas of strong Spanish Wine, in Carduus-water, in an Infusion of red Poppies, or in the Juice of Dandelion, or Borage. *Junker* observes, that this Powder has in many Patients suspended, in one Moment, the Effects of a suffocating Catarrh, sometimes by producing a gentle Vomiting, sometimes by Sweating, and sometimes without any sensible Evacuation; and he advises it to be mixed in these Cases with a certain digestive Salt. It may be given very advantageously to cachectic Girls, in the Quantity of a Grain, mixed in ten Grains of *Crocus Martis Aperiens*, and of the *Arcanum Duplicatum*, the Dose being repeated twice a Day. This Powder may be given either alone, or mixed with a little Sugar, and diluted with Wine, or Water, or any other proper Liquor. It is likewise sometimes given with Oil of sweet Almonds, or in Conserve of Violets, Borage, &c. in form of a Bolus.

It is however to be carefully observed, that this Powder is not to be given till the Quantity of Blood has been lessened, and all the Fluids sufficiently diluted and attenuated; for, as by the Use of it the Blood is very suddenly rarefy'd, and put into a kind of Effervescence; if the Vessels are before full, they must be still more distended, by the increased Heat and Motion of the Blood and other Fluids, and hurtful Congestions may be form'd in the Viscera. It ought therefore never to be given, till the Dangers from a Plethora are taken off, and till the Humours have been rendered fluid by great Quantities of Diluents often repeated.

The Lixivium in which Antimony has been boiled, passed through Cap-paper, is recommended by some in Scabs, and other Diseases of the Skin.

The Fumes which arise from ignited Antimony, may be collected in white, yellow, and red Flowers, if proper Vessels are made use of, and, by adding powdered Glas, Sal Ammoniac, or Nitre, that they may rise in greater Quantities; and these Flowers beingedulcorated by frequent Lotions, are emetic, cathartic, and sometimes sudorific, being given from two to twelve Grains. *Geoffroy*.

#### History of KERMES MINERAL.

In the Year 1714. a new Medicine appeared in Paris, and not only then acquired, but still preserves, an uncommon Character for its Virtues and Efficacies. It is called the *Carthusian Powder*, because at that Time one *Dominic*, a Frier of the *Carthusian* Order, was seized with a violent Defluxion in his Breast, which increasing more and more in spite of a due and careful Administration of all the known Medicines against that Disorder, seemed to threaten the Patient with certain and unavoidable Death. Upon which one *Simon*, a Frier of the same Order, begged, that since the Patient's Life was despaired of, he might be permitted to give him a newly invented Medicine, which he had in his Possession, and which at that time succeeded so well, that Frier *Dominic* was soon cured of his Disorder by its means, to the great Surprise of all that knew his Case. This Remedy was before in the Hands of Mr. *De la Ligerie*, of whom the *Carthusian* frankly acknowledged he had it. But for want of some remarkable Cure to command the Attention of Mankind, and a Concurrence of such other lucky Circumstances as are requisite in an Affair of that Nature, the Powder had not, in his Hands, become so famous, as it afterwards did in the Possession of the *Carthusian*. The Reputation of this Medicine growing pretty universal, the Secret of its Composition was soon discovered by some skilful Physicians, and, among the rest, by Mr. *Lemery*, who confided so much in its Efficacy, and was so sure of his being in the Right, with regard to the Method of its Preparation, that he used it in a Case of great Importance, an Account of which we shall give in his own Words.

Towards the latter End of *December*, in the Year 1718. the Marquis of *Bayers* was seized with a violent continued Fever, accompany'd with terrible Paroxysms, a severe and frequent Cough, a Spitting of Blood, a smarting Pain of his Side, and a considerable Difficulty of Breathing. Nothing that Art can do in a Case of this Nature, was forgot; and though all the Means, commonly judged proper, were used, both with the greatest Care and Expedition imaginable, the Patient nevertheless, in the very Beginning of the next Year, and upon the seventh Day of his Disorder, was reduced to a truly deplorable State: His Belly swell'd, and became prodigiously tense; his Spitting was entirely suppress'd, which produced an uncommon Oppression, and a Rattling of his Throat; his Pulse became small, unequal and intermitting. His Reason left him; he neither spoke to any one, nor made a Reply to any one who spoke to him: In a word, he was in just the same Condition that People on the very Verge of Death, and in their last Moments, use to be. I shall not here exaggerate the Matter, or insist upon the Importance of some Circumstances, such as that the Patient was a Person of Distinction, and a Branch of the House of *Roche-foucault*, or that he was continually surrounded, during his Indisposition, by a Crowd of Persons of Distinction, and others who were interested in his Life and Health, and who can attest the Truth of the Facts I advance. Mr. *Pradignac*, the Apothecary, and Mr. *Momblau*, the Surgeon, who attended the Patient on this Occasion, can also vouch the Truth of what I say. In fine, tho' the Extremity to which the Marquis of *Bayers* was reduced, seemed to cut off all Hopes of a Cure, I nevertheless, in spite of unfavourable and discouraging Appearances, thought it incumbent upon me, both in point of Duty and Prudence, to repeat my Attempts to the very last Period of the Patient's Life. I therefore had recourse, upon this Occasion, to the *Carthusian* Powder, the good Effects of which I had formerly experienced, especially in Disorders of the Breast; and as, of all the considerable Distempers I have known cured by this Powder, none, even that of Frier *Dominic* not excepted, had gone such a Length, or demanded so speedy Assistance and Relief, as this, I gave the Patient, at different times indeed, but very soon after each other, nine or ten Grains of this Powder; and perceiving, that it neither operated by Vomit, Stool, nor Sweat, and that his Pulse, in the mean time, became a little better, and his Oppression less, I repeated every fourth Hour, for twenty-four Hours, a Dose of three Grains of the same Powder, which, at the End of that time, produced no other Effect, than to render the Pulse a little better, and the Oppression a little less; and all this without any Evacuation either by Stool, Vomit, or Sweat. The Patient, in the mean time, remain'd without his Reason, and without Spitting, and his Belly continued preternaturally tense. But as we afterwards continued to give him some Doses of the Powder, his Breast began to grow easy, by discharging a considerable Quantity of Spit, which was hard, baked as it were, and mixed with black coagulated Blood, and which the Patient expectorated for three or four Days. And as soon as this remarkable Crisis came on, the Patient's Reason returned, his Oppression, the Tension of his Belly, and, in a word, all the other Symptoms, disappear'd; and in a short time, the Marquis of *Bayers* was completely cur'd. But what is particularly remarkable in this Cure, is not only the Recovery of the Patient from so desperate a State, but also the Manner in which the Medicine operated, and the Quantity necessary to be successively given, in order to produce the Cure; and, indeed, the Patient took thirty-six Grains of this Powder in the Space of forty-eight Hours; and these thirty-six Grains, instead of working by Vomit, by Stool, or by Sweat, as the Medicine generally does, when exhibited in a much smaller Dose, in Cases where it is attended with Success, insensibly cleared the Parts serving the Purposes of Respiration, and the Expectoration becoming, by that means, much more easy, the Patient found himself, all on a sudden, able to expectorate that prodigious Quantity, which remaining there for some Days, had become dry by the feverish Heat of the Patient, just as if it had been exposed to the Influences of the Air and Sun.

This surprising Cure, perform'd upon a Person of such Distinction as the Marquis of *Bayers*, gain'd the *Carthusian* Powder such an high Reputation, that in short, the King purchased the Secret of its Composition from Mr. *De la Ligerie* in 1720. since which Time the Public has been well enough acquainted with it. It is a Sulphur extract'd from Antimony, by means of the Alkali of Nitre fixed by Charcoal. It is less emetic than the ordinary *Golden Sulphur of Antimony*, employ'd for Purposes of that Nature. It purges gently, and sometimes operates only by Transpiration, though its Effects are even then sufficiently sensible. It is principally adapted to Disorders and Indispositions of the Breast. Mr. *De la Ligerie* did not pretend to be the Inventor of this Medicine; he openly acknowledged, that he had it of Mr. *Chastennai*, to whom it had been communicated by an Apothecary, who was Scholar to the famous *Glauber*. Thus *Glauber* should, in Justice, be esteemed the original Inventor; and, indeed, this Medicine is actually described in



in his Writings, but in so enigmatical a Manner, as cannot fail to disgust People of Sense and Taste.

It is also contained in the late Mr. *Lemery's* Treatise of Antimony, not that this Chymist caught the Hint, or decypher'd the Secret in the mysterious *Glauber*; but, as he design'd in that Work to discover the Qualities of Antimony, by turning it into all the various Shapes imaginable, and combining it with all Substances from which any Effect might be expected, it was impossible but he must light upon a Combination so simple and so natural. 'Tis nevertheless certain, that Mr. *Lemery's* Process is different from that of *Glauber*. The Intention is to extract the Sulphur of Antimony. *Glauber* extracts it by the Alkali of Nitre fixed by Charcoal; then, in order to free the Sulphur of Antimony of that Alkali, with which it is impregnated, he employs Spirit of Wine, and digests it for some Days upon the nitrous Liquor; after which he evaporates the Spirit of Wine, which leaves the Sulphur of Antimony, at the Bottom of the Vessel, either in a liquid Form, if the Spirit of Wine is not totally evaporated, or in a dry one, if it is. In the latter Case it is a red Powder, and is what is called the *Carthusian Powder*. But the deceased Mr. *Lemery* did not use the Spirit of Wine in his Process, since, by only leaving his Materials at Rest, and, as it were, to themselves, he had the same Powder, which precipitates of its own accord. Mr. *de la Ligerie's* Method is intirely the same; and Mr. *Lemery* the younger has found by Experiments, that the Spirit of Wine is of no Use, unless for the sake of having the Medicine either in a dry or liquid Form; for without the Spirit of Wine it can only be obtain'd in a dry Form.

Besides, in order to extract the Sulphur of Antimony, *Glauber* knew of nothing except the Alkali of Nitre fix'd by Charcoal: But the late Mr. *Lemery* found, that every Alkali was proper for that Purpose. Hence *Lemery* the younger concludes, that as Oil of Tartar is the strongest of all fixed Alcalies, it must of consequence be of all others the most proper in this Preparation; and a great Number of Experiments made with this very View, concur to prove his Assertion. The peculiar Property of this Medicine consists in its not being too emetic. If its emetic Quality was as strong as that of the other Preparations of Antimony, it would be thrown up by the Stomach as soon as they are, and would not have sufficient Time to diffuse and insinuate itself into all the small Vessels, where it produces its most considerable Effect, or, at least, that Effect which is peculiar to itself. Now, in order to render it less emetic than the other Preparations of Antimony, there must necessarily remain in it a certain Quantity of Alkali to bind up, and, as it were, entangle the Sulphur. And there remains more or less of this Alkali in the Sulphur, or its Action is stronger or fainter, in proportion as the fix'd Alkali, which originally acted upon the Antimony, is stronger or weaker.

In fine, the late Mr. *Lemery* has not, like *Glauber*, made this red Powder an universal Medicine, but very accurately determin'd its particular Uses, and the precise Cases in which 'tis proper, which he learnt from Experience, and in the Course of his Practice, long before the *Carthusian Powder* was heard of in the World. So that if Mr. *Lemery* has not the Glory of being the original Inventor, he has at least an Equivalent accruing from the Additions and Improvements he has made to this famous Medicine. *Hist. de l'Acad. R. 1720.*

*Memoir on EMETIC TARTAR, and KERMES MINERAL.*  
By Mr. GEOFFROY.

The Use of emetic Tartar, when the Intention is to vomit, and of *Kermes Mineral*, when the Design is to prepare and dispose the Humors to a salutary Evacuation, can possibly be liable to no just Exceptions, if those Medicines are prescribed on proper Occasions, prepar'd with all the necessary Precautions, and the best Method of Preparation uniformly and universally follow'd: But this is not the Case; for it often happens, that three Grains of some emetic Tartar produce very considerable Effects, whereas six or seven Grains of another emetic Tartar, differently prepared, shall produce no Effects at all, and that in Constitutions nearly alike.

The Case is the same with the *Kermes Mineral*: Three or four Grains of some Kinds of it excite very faint Nausea; whereas one Grain of another Sort actually vomits, and this too in Cases where we cannot ascribe this Difference of Effects to the greater or smaller Quantity of Acid lodg'd in the Stomach, or introduced into it.

This surprising Variety calls aloud for our Attention, and deserves to have its Causes inquired into, since 'tis a Point wherein the Good of Society, and the Welfare of Mankind, are nearly concern'd.

That I might therefore discover the Causes of this Variety, I collected twelve different Parcels of different emetic Tartars, and a like Number of different Preparations of *Kermes Mineral*. The Manner in which I analysed them, and the Differences of the Substances they yielded, make up a considerable Part of this Memoir; because these Differences will be certain and infallible *Criteria*, or Marks by which we may know

the Effects to be expected from such and such an emetic Tartar, or such and such a *Kermes Mineral*, taking it for granted, in the mean time, that the Constitutions of the Patients are nearly equal. I shall, at the End of the Memoir, propose a very simple Remedy, which may in many Cases be substituted in the room of the *Kermes*, and that very often with less dubious Success.

Antimony, of which 'tis well known that emetic Tartar and *Kermes Mineral* are two Preparations, is a Mineral compos'd of a small Quantity of easily vitrifiable metallic Earth, a considerable Portion of a vitriolic Acid, and a Bitumen, or Oil of the Earth.

This Acid, in Conjunction with the Bitumen, forms the inflammable Sulphur, which sometimes abounds so much in mineral Antimony, that some of it is frequently found to burn like common Sulphur. It is this Sulphur, united with the metallic Earth of Antimony, which, when this Mineral has only undergone its Meltings for Purification, discovers, and renders observable, that surprising Multiplicity of Needles of which it is compos'd; but 'tis to the vitriolic Acid, united with the Bitumen, and forming the common Sulphur, that these Needles are owing, and not to the oily Matter alone: For, if one melts Glass of Antimony with a simple Phlogistic, such as Charcoal, reduced into a Powder, the Glass is revived into a Regulus, which is not like Antimony, adorn'd with Needles, but full of little shining Plates or Laminæ. If, on the contrary, we employ common Sulphur to revive the Glass of Antimony, we shall find in the Crucible an Antimony adorn'd with Needles, like the common Antimony; because all that this Mineral had lost, during its Calcination, is by this means restored to it; that is, its vitriolic Acid, and the Fat of the Earth, which, in Conjunction, form that common Sulphur which is necessary to constitute it Antimony.

That a vitrifiable Earth is contain'd in Antimony, may be prov'd from its being so easily vitrify'd, when by Calcination one evaporates the Overplus of the vitriolic Acid, and of the Phlogistic which hinder'd the Continuity or Contact of the constituent Parts of this metallic Earth.

1. Thus it follows, from what I have said, that this Earth, disjoin'd and divided by a great deal of inflammable Sulphur, is Antimony.

2. That some Part of the inflammable Matter being carry'd off, so that no more of it may remain than what is sufficient to continue a metallic Form to the Antimony, in that Case, a Regulus is produced.

3. That if that inflammable Matter is almost intirely carry'd off by a moderate Calcination, the metallic Earth of Antimony assumes the Form of Glass, when put in a melting Heat.

4. and lastly, That if this Calcination is carry'd on gradually, till the highest Degree of Fire is employ'd, we shall have a disanimated or inert Calx or Earth, which will be entirely destitute of the emetic Virtues of Antimony itself, of its Regulus, and of its Glass.

Some Authors, and among the rest *Kunkel*, suppose, that in Antimony there is a mercurial Principle concurring with the Sulphur and the vitrifiable Earth, to the Formation of this Mineral. This Author even describes, but in an enigmatical Manner, several Ways of discovering this Mercury; but I dare not admit this mercurial Principle, till, by some clear and unexceptionable Process I have convinced myself, that there is a liquid Mercury in Antimony.

Upon the Authority of *Kunkel*, who was an excellent Chymist, I have already begun some of these Processes, by which 'tis said this Mercury is obtain'd; and if my Experiments succeed, they will furnish me with Materials sufficient for another Memoir.

At present, I only know of three secondary Principles, which discover themselves in Antimony; a vitriolic Acid like the Spirit of Sulphur; a sulphureous, bituminous, or oily Substance, no matter which, provided, in Conjunction with the vitriolic Acid, it is capable of forming a common Sulphur; and, lastly, a vitrifiable metallic Earth.

Common Sulphur, the vitriolic Acid, and most of those oily Liquors with which it is capable of producing Sulphur, have no emetic Quality; and the inert Calx of Antimony produces no Nausea; but yet, of all these Substances combin'd together, a Mineral is form'd, from which a Regulus, a Glass, and other Preparations, may be obtain'd, which are of a violent emetic Quality.

If pounded Glass of Antimony be digested in White-wine Vinegar, till the Vinegar is so fully saturated as to receive no more Tincture from it; if this Powder is again melted, so as to vitrify; if after this it is pounded afresh, and digested in fresh White-wine Vinegar; and if this Operation is repeated several times, to a fourth or fifth Vitrification, the Glass will in this Case be black, scarce transparent, and entirely destitute of an emetic Quality, tho' the two or three first have a considerable one.



All these Vinegars are emetic in different Degrees; the first are a little more salt than the last, which seem to have an astringent Taste. They all assume a reddish Colour, by digesting upon the pulverized Glass of Antimony; but if digested upon any purely sulphureous Matter, they would assume the same Colour, but would not, on that Account, acquire an emetic Quality. The oily Part of the Vinegar must then have extracted the Tincture from that Part of the sulphureous Matter, or Phlogistic, which was concentrated in the Glass of Antimony; and the Acid of the same Vinegar must have corroded or dissolved a Portion of the Reguline Part of the Glass, or, in other Words, of that Part which is most easily reduced into a Regulus. Now 'tis already known, and I shall farther prove, that it is the Reguline Part of Antimony, in which its emetic Quality consists; or, in other Words, its emetic Virtues reside in some Combination of Sulphur, composed of a very small Quantity of vitriolic Acid, and a Portion of inflammable Matter united to a vitrifiable Earth. If this Earth has few Interstices filled with Sulphur, it will be very emetic. This is the Case with Glass of Antimony, which is one of the most emetic of all the Preparations of this Mineral. If these Interstices are either large, or very numerous, as is the Case with Regulus of Antimony, which contains more of Sulphur than its Glass, the Preparation will be a little less emetic. In fine, if these Interstices are so large as to contain more gross Sulphur than there is of this vitrifiable Earth, it will retain no emetic Quality at all, unless convey'd to it by some accidental Circumstance; as in Antimony, which does not vomit without the Aid and Assistance of some Acid.

The principal Reason why crude Antimony is not emetic, is, because the vitriolic Acid contain'd in it, is united to an unctuous Phlogistic, with which it forms a gross and bituminous Sulphur, which so ties up the Particles of the metallic Earth, that they cannot act upon the Stomach, without some foreign and adventitious Aid. But when the greatest Part of this Acid, and this bituminous Phlogistic, are carried off by Fire, or any other Means, then there only remains in the Regulus a Sulphur capable of Expansion, and consequently in a Condition to carry along with it some Particles of the metallic vitrifiable Earth, which by their Rigidity are capable of irritating the Nervous System, and exciting violent Contractions; for I suppose, that this Irritation is the first Cause of Vomiting.

It will, perhaps, be objected to me, that all I have said upon the emetic Quality of Antimony, was in a great measure known before: That may possibly be true; but, considering the relation these Things bear to what I am afterwards to advance, I could not forbear shewing, that the phlogistic or inflammable Principle of Antimony is not emetic, but so far as, after its Disengagement from its vitriolic Acid, it is united to its vitrifiable Earth; that is, so far as it approaches the Form of the Glass, or, at least, that of the Regulus; and that, in Consequence of this, the more the emetic Tartar and the Kermes contain of a Regulus that is easy to be reviv'd, the more emetic they must of course be. I now come to give an Account of the Experiments which prove this Truth.

I made use of an Ounce of each of the different emetic Tartars I collected: I beat them separately with an equal Quantity, or a little more, of black Flux-powder, compos'd of two Parts of red Tartar, and one of Nitre, calcin'd together: I put these Mixtures into different Crucibles, shap'd like inverted Cones; I held them in a melting Heat, till the Salts, being melted, had sunk down and appear'd like a settled Oil at the Bottom of the Crucible: I allow'd the Fire to go out, and the Crucibles to cool; then I broke them, and found the Regulus, which had been revived, collected at the Bottoms of the Crucibles.

I had from an Ounce of the weakest emetic Tartars, from thirty Grains to one Dram eighteen Grains of Regulus; from those of a middling emetic Quality, a Dram and an half; and from such as were most violent in their Effects, two Drams ten Grains.

The Scorix of these Essays, which were at first yellow, became afterwards green; then they assumed a blackish Colour; last of all, they were dissolved per Deliquium.

The Action then of the strongest emetic Tartars depends upon the Quantity of the Regulus of Antimony, which the Cream of Tartar has dissolved; and the more Antimonial Preparations, which have been boil'd in the Solution of Cream of Tartar, approach to the Form of the Regulus or Glass, the more violent the emetic Tartar is; because then the vegetable Acid of the Tartar acts more immediately, and dissolves more of the emetic Part of the Antimony.

If, on the contrary, this Solution of Tartar is boil'd with crude Antimony, the Reguline Parts of which are sheathed up, and defended by the gross Sulphur, this Acid will scarcely act upon it.

I powder'd two Ounces of the Cream of Tartar with one Ounce of Antimony, which had already been levigated: I boil'd that Mixture, in a large Quantity of Water, for eighteen Hours. The Liquor having assum'd a yellowish Colour, and a styptic Taste, resembling that of Vitriol, I filtrated it, whilst

as yet hot, thro' a double Paper. The Mass, remaining in the Bottom of the Matrafs, sent forth a sulphureous Smell. This impregnated Liquor being evaporated, I had Crystals of Tartar, two Grains of which, when given for a Dose, only excited a slight Nausea.

I took an Ounce of these Crystals of Tartar, thus slightly impregnated with the emetic Part of Antimony; I melted it, like other emetic Tartar, with the black Flux-powder, and found in the Crucible, when cold and broken, a great many yellow Scorix, intermingled here and there with some Grains of Regulus, which were so minute, and in so small a Quantity, that they could not, by their own Weight, collect themselves at the Bottom of the Crucible.

Tho' it is evident from this Experiment, that the Acid of Tartar acts upon Antimony, and that it corrodes a little of its Reguline Part, yet this Corrosion is so weak, that it is not possible by the Reduction to collect the Particles of the Regulus carry'd off by this vegetable Acid: It is also certain, that however fine the Powder of the Antimony is, every one of its small Parts remains always wrapt up in its gross Sulphur, and that this Sulphur defends it, and proves; as it were, a Covering against the Action of the Acid of the Tartar.

It is then proved, that before a vegetable Acid can become sufficiently emetic by its remaining upon Antimony, that Mineral must be freed as much as is possible from its gross Sulphur; that it is reduced into a very pure Regulus; and that the nearer it approaches to the Form of the Glass, without the Addition of any foreign Matter to facilitate its Vitrification, the more the Acid of Tartar, in Conjunction with the Sulphur, will carry off these rigid Parts of the metallic Earth, which I formerly said was the Cause of Vomiting. Thus all emetic Tartar, which has been prepared with the Glass of Antimony, and the Liver of Antimony wash'd, which is a Species of Vitrification, will be much more emetic than any other emetic Tartar, that has not been so prepared.

I have already shewn, by the Quantity of Regulus contained in the different emetic Tartars, which I reduced, that it is a Matter of Importance to know to what Degree this Remedy is emetic, and that very considerable Accidents may be produced by those random Prescriptions, in which four, five, or six Grains of emetic Tartar are order'd for a Vomit. If then it should be thought proper to follow my Method, in order to know in what Degree any Emetic ought to vomit, without the Operation being follow'd with any troublesome Accidents, I shall here draw up a Table of what was yielded by my several Reductions. I made Choice of emetic Tartar upon two different Extremes, that is, the weakest and the strongest; to these I always added that which to me appeared to contain the most suitable Proportion of the Regulus.

An emetic Tartar, from an Ounce of which thirty-two Grains of Regulus may be produced, contains four Grains of the Regulus in each Dram, and each Grain the eighteenth Part of a Grain, and consequently may be look'd upon as too weak.

That which yields two Drams of Regulus in an Ounce, contains eighteen Grains of it in each Dram; that is, each Grain the fourth Part of a Grain. This works very violently, unless given in a very small Dose.

Lastly, that which yields a Dram and an half of Regulus in an Ounce, contains thirteen Grains and an half in each Dram, that is, three Sixteenths of a Grain in each Grain. This is a due Proportion, and I know two Grains, or two Grains and a half of it, will vomit sufficiently, since by that Dose six or seven Sixteenths of a Grain of the Regulus are convey'd into the Stomach.

Tho' I here determine the Quantity of Regulus contain'd in each Grain of emetic Tartar, with relation to the total Product of a simple Reduction by the black Flux-powder, I do not from that mean to conclude, that each Grain of unreduc'd emetic Tartar contains precisely the Dose above specified. I know that it contains a little more: But as this Surplus remains in the Scorix of the Reduction, it would be necessary to dissolve them in Water, to precipitate the Powder of them, commonly called *Sulphur of Antimony*; and then to reduce this Powder by the black Flux-powder; in this Case we should also have from it a little Regulus. But I omit this Reduction, that my Process, serving as a Proof, may be the more short and easy.

#### Examination of KERMES MINERAL.

This Preparation, published by Order of the King in 1720. is made by boiling Antimony in Rain-water, quickened by the Liquor of Nitre fixed by Charcoal; which is the Alkalest of *Glauber*. After the Filtration of the Liquor, as yet warm, a Powder is precipitated, which, when well edulcorated, is the very Remedy of which we are treating.

The *Kermes Mineral* was, for some time, look'd upon as a Sulphur of Antimony; and, taking it for such, I examin'd it first by Desflagration, in order to know whether it burn'd in a

different



different Manner from Powder of Antimony, or from Golden Sulphur of Antimony.

I made three Pieces of thick China red-hot in the same Fire; upon one I let ten Grains of levigated Antimony drop; upon another I let fall ten Grains of the Golden Sulphur of Antimony of the fourth Precipitation, because that is the finest; and upon the third, as much well-chosen and high-colour'd *Kermes*. The *Kermes* affords a more bluish Flame than the other two; it consumes sooner than the Golden Sulphur of Antimony, which in burning boils like Antimony itself; these two last sending up Vapours, or a Smoke much thicker. The Smell of the *Kermes* was, in this Experiment, much less sulphureous and pungent than those of the other two. By continuing the Fire these three Substances were evaporated, and when they ceas'd to smoke, the Antimony left upon the China a reddish-brown Spot, of a Coffee-colour.

The Golden Sulphur of Antimony left a reddish Substance intermix'd with some white Points.

As for the *Kermes*, it only left a thin, white, spongy Earth, interspersed with some little yellow Spots.

I have already said, that I made Choice of high-colour'd *Kermes*, because 'tis necessary to observe, that if this red Powder has not been sufficientlyedulcorated by frequent Ablutions in Water, and that if too much alkaline Salt remains in it, it loses its Colour, when exposed to the Air, and becomes colour'd with a Flower, or white Stratum. I myself have a Mass of *Kermes* of this Sort, the Whole of which is become white, and which, as it whiten'd, lost almost all its sulphureous Odour; which Circumstance is a strong Presumption, that there is a great deal of Volatility in the sulphureous Part of this Powder; for Sulphur of this Preparation is no longer of the same Nature with the gross Sulphur of Antimony, because in it the vitriolic Acid has had its Nature alter'd by the Alkali of the fixed Nitre. In order to be satisfy'd as to this, I took of welledulcorated *Kermes*, one Part; with this Powder I extinguished in a Glass Mortar two Parts of very pure Mercury, which I had revived, without Distillation, from corrosive Sublimate, by Filings of Iron. From this Mixture there was a black Powder or *Æthiops* formed, just as when one extinguishes Mercury with common Sulphur. Yet there was this Difference between these two Preparations: The *Æthiops* made by common Sulphur is a Preparation which always yields an artificial Cinnabar by Sublimation. If the *Kermes* had been a Sulphur of the same Nature, that is, if it had contained a vitriolic Acid at Liberty to act, I should have obtain'd from my *Æthiops* of *Kermes* a Cinnabar of Antimony. Notwithstanding this, after having subjected it to the Fire in a Retort till it was almost melted, the Mercury passed into the Recipient without any Diminution of Weight. Only in that Part of the Neck of the Retort where it comes immediately from the Furnace, there was a small red Circle, which, by the way, was only a kind of Tincture, almost without any Consistence. At the Bottom of the Retort I found the *Kermes* melted into several small Masses detached from one another, and of a darker Colour than Liver of Antimony; some of these Masses were full of Bubbles of Air, and all of them were brittle. None of these Masses had either the Needles of Antimony, or the Laminae of its Regulus. I believe that what facilitates this Fusion of the *Kermes*, tho' so imperfect as that it cannot be look'd upon as a Reduction, is the Portion of alkaline Salt necessarily contained in this Powder, but which is not sufficient to produce a complete Revivification of the Regulus. All these Masses were rough, with small, transparent, rigid, and brittle Needles. The Arch of the Retort was cover'd with a very fine, white Powder, interspers'd with small Groupes of the like Needles rang'd almost like a Star, with many Rays darting out from it. These Groupes of Needles were most apparent near the Neck of the Retort, where they had stopp'd upon a Bed of yellow Dust. The Difference of Colours in this sublim'd Dust and Groupes of Needles, was not easy to be discover'd, unless when I made the Experiment with a small Quantity of Matter; for when I employ'd a large one, the Fire, in melting the *Kermes*, rais'd a more turbid and brownish Substance to the Top of the Retort.

If then a Cinnabar produced by *Kermes* and Mercury is desired, we must either add a vitriolic Acid to them, or disengage that which has been laid hold on by the Alkali of the fixed Nitre, that, in Conjunction with the inflammable Part of the *Kermes*, it may act like a common Sulphur reproduc'd.

#### First EXAMPLE.

I took an Ounce of *Kermes*, and, during Trituration, pour'd upon it sixteen Drops of the Oil of white Vitriol, which was not sulphureous. After Trituration for an Hour, the Powder did not to me appear acid; afterwards I extinguished in it, by little and little, four Grains of purified Mercury: I continued the Trituration for fifteen or sixteen Hours; for the Mixture was a long time before it assumed the blackish Colour of *Æthiops*. Then, upon putting this *Æthiops* into a Retort, a yellow Sulphur, in a

small Quantity, rose into the Neck of the Retort, and then a very black and bituminous Substance; the Mercury, in the mean time, pass'd in a liquid Form into the Receiver. When I observed, that nothing ascended any longer, I augmented the Fire, melted the Bottom of the Retort, and next Day found, upon the Top of the Retort, and on the Surface of the Mass which remain'd at the Bottom, a pretty considerable Quantity of a very beautiful Cinnabar of Antimony; but it required a Melting-heat in order to sublime it.

#### Second EXAMPLE.

In order to disengage the vitriolic Acid from the *Kermes*, entangled and wrapp'd up in the alkaline Salt of the fixed Nitre, I took three Parts, or nine Drams, of *Kermes*; and four Parts, or twelve Drams, of corrosive Sublimate; for these are the Proportions fix'd by the late Mr. Lemery, who analysed Antimony so accurately: I put this Mixture into a Retort, and forced it by a reverberatory Heat. The Distillation yielded me Butter of Antimony in a liquid Form; which is a Proof of a Regulus being contained in *Kermes*; then a revived Mercury, and, last of all, a true Cinnabar of Antimony. I also found, at the Bottom of the Retort, a Substance like melted Antimony, with few *Scoriae*. The Top of the Retort was covered with white Flowers of Antimony.

By this Experiment it appears, that the Acid of the Sea-salt, which was contained in the corrosive Sublimate, has quitted its Mercury, in order to attack the Reguline Part of the *Kermes*, dissolve it, and convert it into Butter of Antimony: It also appears, that this Regulus, converted into Butter, has left at Liberty the Portion of vitriolic Acid, which, in the *Kermes*, before the Process, was united with the Alkali of the fix'd Nitre, with the sulphureous Part, and with the metallic Earth of the Antimony; for these are the four Ingredients in this Powder. It also appears, that at this time the Portion of vitriolic Acid, being partly disengaged from the Substances with which it was entangled, has resumed that Proportion of the Phlogistic, which was necessary for its being again converted into common Sulphur, and rising in Cinnabar, by uniting with the Mercury. I took the Mass in the Bottom of the Retort, and having reduced it by the black Flux-powder, I had twelve Grains of Regulus from the nine Drams of *Kermes*, which I used in this Experiment; that is, one Grain and a Third of Regulus were yielded by each Dram of the *Kermes*. As I repeated the whole Steps of this Process twelve different Times, upon twelve different Sorts of *Kermes*, the Products of the Reduction varied; for I have found two Sorts of *Kermes*, which, by the reductive Flux-powder, have yielded two Grains and an Eighth for each Dram of Powder, upon which the Experiment was tried: Thus that *Kermes*, the Regulus of which is so easy to be revived, is of all others the most emetic. To these Products of revived Regulus, we must add that Portion of the Regulus which has pass'd into the Butter of Antimony, and that which remained in the *Scoriae* of the Reduction.

In order to prove, still more effectually, that there is no common Sulphur in the *Kermes*; or, at least, if it contains any in the Form of common Sulphur, that it is in too small a Quantity to rise in Cinnabar with the Mercury, I put into a Retort half an Ounce of *Kermes*, well wash'd, without any Addition: I augmented the Fire by degrees, and, with a moderate Heat, there was formed, at the Neck of the Retort, a yellow Circle of real Sulphur; but it was in as small a Quantity as the red Circle without Consistence, in my first Experiment upon *Kermes* triturated with Mercury.

I have then shewn, that the *Kermes* and Mercury, joined together, cannot yield Cinnabar without the Aid of a vitriolic Acid, or the Help of corrosive Sublimate: Let us now inquire, what it will produce with the vitriolic Acid concentrated in Mercury.

For this Purpose, I put into a Retort a Dram of Turbith Mineral, rubb'd with an equal Quantity of *Kermes*: The Retort being placed in a reverberatory Heat, a little insipid Phlegm was first yielded; afterwards there was fix'd, about the Mouth of the Retort, a Vapour, which was at first white, then yellow, afterwards a pale Red, and, last of all, a deep Red, like Cinnabar. This red Colour was a little on the brownish Cast, in that Part of the Neck which was most exposed to the Fire: The interior Sides of the Retort were cover'd with a yellow and red Stratum, upon which were sublimed Groupes or Clusters of Needles, resembling those I have already mention'd. Upon taking away the Receiver, there came forth a sulphureous and very penetrating Smell: I took from the Receiver fifty-two Grains of revived Mercury; and the Retort being cut, I found at its Bottom a Mass, divided into several Parts, which, as to their Colour, had a Metallic Appearance; but were spongy and rough, with many white and shining Needles.

Thus, in this Experiment, the vitriolic Acid of the Turbith Mineral abandons its Mercury, in order to seize or attack the



the Phlogistic, the Alkali, and the Metallic Part of the *Kermes*; a Part of this Acid, being united to the Phlogistic, was again converted into burning Sulphur: This made up the yellow Circles about the Neck, and at the Top of the Retort; for, upon taking some of it off, I saw it burn like Sulphur. A Part of this regenerated Sulphur was joined to some Portion of Mercury, and sublimed into Cinnabar; at least the red Circle to me appear'd a true Cinnabar. At last the rest of this Acid was concentrated with the Reguline Part, and was the productive Cause of all those Needles with which the Masses, in the Bottom of the Retort, appear'd rough.

This same vitriolic Acid of the Turbith Mineral finds, in the red precipitate Mercury, Materials for subliming another Substance, which is neither a Cinnabar, nor a corrosive Sublimate. Tho' the two following Experiments seem to have little relation to our present Subject, they nevertheless deserve our Attention.

I put into a Retort a Mixture of one Dram of Turbith Mineral, and one Dram of red Precipitate: These two Substances, at first, yielded an Acid, which was of a nitrous Taste and Smell; afterwards there appear'd a Steam of a very strong sulphureous Odour; which must have proceeded either from the Phlogistic of the Mercury, or from that of the Spirit of Nitre, no matter which.

One Dram and twenty-four Grains of Mercury pass'd into the Receiver, and the Remainder was sublimed to the Neck of the Retort, in the Form of a white Mercurial Salt; which is not a corrosive Sublimate, but a Turbith sublimed, since it does not dissolve in Water, but becomes yellow in it, just as Turbith Mineral does.

Turbith Mineral, put alone into a Retort, only yielded thirty-one Grains of liquid Mercury each Dram: Besides, it was necessary to augment the Fire so far as to melt the Retort, at the Bottom of which there remain'd a white Spot, which had penetrated the Substance of the Glass; and in the Neck of the Retort, I found, sublimed, a little yellow Sulphur, regenerated, probably, with the Phlogistic of the Mercury, and a white compact Substance, which neither dissolved nor changed its Colour in Water; which was also the Case with the white Spot at the Bottom of the Retort. This white indissoluble Substance is, according to *Kunkel*, the Salt which was lodged in the Oil of Vitriol, and which the Mercury had Strength enough to raise. This may possibly be what the same Author, in several other Passages, calls the Salt of Metals; for, according to him, that Salt is contained in the Oil of Vitriol. It is well known, that the red Precipitate, forced by a great Fire, revives of itself without Addition: Each Dram of it yields from sixty-five to sixty-six Grains of Mercury: There remains in the Bottom of the Retort a reddish-grey Earth; and about its Neck there appear three Circles, one red, another yellow, and the third white.

A Dram of the same Precipitate, being distill'd with an equal Weight of well-washed *Kermes*, yields an acid sulphureous Liquor: There appears on the Top, and about the Neck of the Retort, a very small Tincture of Red, and sixty-five Grains of Mercury are revived.

A Dram of the same red Precipitate being distill'd with an equal Quantity of levigated crude Antimony, the Mercury was less quickly revived than in the two preceding Experiments; because the Flowers which rose from the Antimony being in great Quantity, the interior Sides of the Retort were, by that means, render'd less smooth, and the mercurial Vapours must of Consequence have slipp'd over them with the more Difficulty: Nevertheless, when all the Mercury was collected, it amounted to sixty-six Grains, full Weight. Thus it appears, from these three Experiments, that in one Dram of red Precipitate there are only six or seven Grains of the Acid of Nitre.

But to return to *Kermes*; I have shewn, that this Powder, which one would be inclined to take for a Sulphur, is the very Metallic Part of Antimony, since both a Butter and a Regulus of Antimony may be procured from it; but the inflammable Sulphur of Antimony has changed its Nature. The Alkali of the fixed Nitre has, in Conjunction with it, formed a Liver of Sulphur, which is divided and suspended in the Liquor, during the Ebullition, by which the *Kermes* is to be extracted. It is sufficiently known, that Liver of Sulphur has a Power of dissolving all Metals, Gold not excepted, when fused with it. It is true, *Kermes* is not prepared by a Liver of Sulphur in Fusion; nevertheless, when simply dissolved in Water, there is nothing to hinder it from attacking the Metallic Part of Antimony: And this is so true, that if Rain-water be too much charged with alkaline Salt, there is precipitated from it a *Kermes*, from which, by the black Flux-powder, one procures a great deal more of Regulus, than if the *Kermes* had been prepared by a less acid Liquor. *Kermes*, then, is nothing more than a Liver of Sulphur, impregnated with the Metallic Part of Antimony; but this Metallic Part is, in it, divided into extremely small Particles; and the finer these are, the less emetic will the *Kermes* be. Thus, after the *Kermes* is prepared according to the Process published by the King's Order, which is, of all others, the best,

if a Species which shall only act, as it were, by colliquating the Humours, without exciting a Nausea, be desired, we must take a Dram of *Kermes*, put it into a pretty large Matrafs, pour four Pounds and an half of Water upon it, in which two Drams and an half of fix'd Nitre must be dissolved; which has been before dissolved, filtrated; evaporated, and reduced into a dry Form, in order to depurate it from a pretty considerable Sediment, which it leaves upon the Filtre; lastly, it must be boil'd: A greyish Earth, and the grossest Portion of the Regulus will precipitate, and by pouring off the Liquor, and allowing it to cool, we shall have a *Kermes* very fine, very red, and much surer in its Operation, when it is not given with a View to vomit; for this corrected or rectified *Kermes* can never prove emetic, unless by Accident, when some other Circumstance concurs to make it so. It is true, by this Rectification near one half of it is lost.

As to unrectified *Kermes*, as we often find some of it, which is not prepared with all the necessary Precautions, that the Reguline Part may be sufficiently divided and attenuated in it, I believe one may, with Safety, substitute in its room Antimony itself, prepared in the following manner:

Take Hungarian Antimony, in small Pieces; make Choice of that which has beautiful shining Needles; reduce it to a Powder, and pass it thro' the Searce; then levigate it with Water till it ceases to crackle under the Teeth: Afterwards put it in a Bowl full of Water; stir the Water with a wooden Spatula; and after having allowed the grossest of the Powder to subside for twelve or fifteen Seconds, pour off the Water, by Inclination of the Vessel, upon one or more Filtres. Take the subtil Powder which remains upon these Filtres, and dry it in a Stove: When it is sufficiently dry, levigate it afresh, adding a Dram of very dry Sugar-candy, powder'd, to each Ounce of the Powder of Antimony; and continue to pound it till such times as when you spread a little of the Powder with a Knife, you may not, in a clear Light, perceive any shining Particles.

'Tis long since the Powder of Antimony was extoll'd as an excellent Remedy against Disorders of the Lungs, as a fine Resolvent in an Asthma, and in many other Disorders.

In 1674. *Kunkel*, being racked with very smart Pains in his Right Arm, consulted *Sennertus*, a Physician in *Wittenberg*, and Son to the famous *Sennertus*, who ordered him to use Antimony, which he did for the Space of a Month, and by its means had his Pains removed.

In 1679. the same *Kunkel* had recourse to levigated Antimony, for severe Gout-pains both in his Hands and Feet. He formed it into Troches, and got cured by its means. These Antimonial Troches are still known in some Towns of Germany, by the Name of *Kunkel's Troches* (particularly at Frankfurt and Nuremberg).

If my Testimony can add any Sanction to this Matter, I can boldly venture to assure the World, that this Mineral, in fine Powder, is a sovereign Remedy for Rickety Children, or such as have Knots on their Joints, and for all those who have obstructed Glands. It produces very good Effects in Children tormented with Worms; and I have known Women labouring under a *Flux Albus*, who, after using the common Remedies in vain, have been cured by this Powder: But, at first, it should only be given in very small Doses, not exceeding a Grain. And tho' Antimony is not of itself emetic, it is, nevertheless, proper to add to the Powder of it three or four Parts of some Alkali, such as Crabs-eyes, or any other of the like Nature. The Dose should be augmented by degrees; and thus one may, at last, venture upon eight or ten Grains a Day. If the Doses were increased too fast, they would produce Gripes in the Intestines, purge the Patient, or bring on a Nausea: The Patient must also be cautioned against the Use of Wine, except it be very mellow. He must also abstain from Vinegar, and every other Acid, and even from Soups, in which acid Herbs, such as Sorrel, &c. have been boiled.

From what has been said, it follows:

1. That the emetic Quality of Antimony is lodged in its metallic vitrifiable Earth, which is already well enough known to Chymists; that emetic Tartar does not vomit, but because it is impregnated with a great many gross Particles of this Earth; and that by reducing it, by the black Flux-powder, we may know in what Degree it is emetic.

2. That the *Kermes* is a Liver of Sulphur, which has dissolved a Portion of this Metallic Earth, but more subtilly than the Acid of Tartar does: That one may rectify Antimony so as to render it simply resolvent and diaphoretic: And lastly, that a fine Powder of Antimony may be substituted in the room of the *Kermes Mineral*. *Mem. de l'Academie Royale*, 1734.

Farther Observations on KERMES MINERAL, by Mr. Geoffroy.

In 1734. I presented a Memoir in two Parts; the first on Emetic Tartar; the other on *Kermes Mineral*. This second Part



Part not containing a sufficient Examination of that Preparation of Antimony, I thought it necessary to add thereto the Supplement which follows; in which I first examine the *Kermes* prepared by Ebullition, then the *Kermes* prepared by Fusion, but both with the Assistance of Alkaline Salts; after which, I hope to shew, that Antimony, treated with Acids, yields a Preparation not much different, as to its Effects, from the Preparations obtained by Alcalis.

Antimony, tho' already analysed by an able Hand, may still supply us with a Set of Facts, which, if sufficiently adverted to, will only confirm what the late Mr. *Lemery* has published concerning it, and render our Chymical Examination of this Mineral the more complete.

#### KERMES prepared by Ebullition.

The following Experiment required an indefatigable Patience, since the Process was seventy-eight times repeated upon the same Antimony, and with the same Lixivium of Alkaline Salts. There are not, indeed, any dazzling Circumstances in such a tedious Operation; but the Mind is sufficiently recompensed for its Labour, by being satisfied with regard to the Truth of a Fact which was formerly dubious; and by being put in a Capacity of proving, that, by a still greater Degree of Patience and Perseverance than I used, it is possible to reduce the Whole of Antimony into *Kermes*, except some Sediments, which shall be examined separately.

I shall shew, at the same time, that *Kermes* is no more than a Magistery, or a Precipitate of the Reguline Part of Antimony, divided into extremely fine Particles, which are cover'd, as it were, with a Stratum of Liver of Sulphur, and consequently with a sort of Varnish, composed of an alkaline nitrous Salt, and a gross or inflammable Sulphur of the Mineral: That the alkaline Salt may be disengaged from the *Kermes*, and subjected to the Senses, by being made a Basis for regenerating the Nitre, and the Sea-salt, in order to form a vitriolated Tartar: That we may also separate from the *Kermes* a white Earth, difficult to be perfectly known, and which belongs either to the alkaline Salt, or to the Antimony, or to the Water employ'd in the Ebullitions, or perhaps to all the three.

In order to procure this Magistery, I have exactly followed the Process published by the King's Order; that is, I took a Pound of *Hungarian* Antimony, broken in small Pieces, according to the Direction of its Needles; four Ounces of the Liquor of Nitre, fixed by Charcoal, and well filtrated; and a Pint of Rain-water. After two Hours Ebullition I filtrated the Liquor, whilst as yet hot, which precipitated the *Kermes* as it cool'd. At a second Ebullition I added three Ounces of fresh Liquor of fixed Nitre, and one Part of Rain-water. At a third Ebullition I pour'd, upon the decanted Lixivium, two Ounces more of the same alkaline Liquor, and a Pint of Rain-water. This is the Process published by the King's Order, strictly followed. I extracted from it a *Kermes*, which, when well edulcorated, and sufficiently dried, weighed only one Dram sixty Grains, tho' the Antimony had lost two Drams.

I repeated the same Process with four Pounds of fresh Antimony, one Pound of the Liquor of fix'd Nitre, and four Pints of Rain-water. At the second and third Ebullitions, I added, first, twelve Ounces of alkaline Liquor, and four Pints of Water; afterwards eight Ounces of the same saline Liquor, and four Pints of Water more. These three Preparations yielded an Ounce and two Drams of *Kermes*; and the four Pounds of Antimony lost seven Drams and an half.

If the Products of these two Processes, when compared, had born a Proportion to the Substances employ'd in them, I should have only had, by the second Operation, seven Drams and twenty Grains of *Kermes*, and the four Pounds of Antimony should have lost an Ounce. But 'tis probable, that this Difference in the Diminution of the Weight of the Antimony proceeds from the Difference of the Surfaces of that Mineral; which, in the second Operation, did not amount to four times the Sum of the Surfaces in the Pound of Antimony employ'd in the first Operation: As for the Augmentation of Weight in the *Kermes*, in the second Operation, may not one account for it by saying, that a large Quantity of alkaline Salt sooner forms a proportionably greater Quantity of Liver? That the more Liver there is, the more Reguline Particles will be disengaged; and that the more of these Particles are disengaged, the more there is of this saline and sulphureous Varnish, which I mentioned; and that there must consequently be more Weight, since more Circumstances concur to augment it? Besides, 'tis well known, that the Products of a great many Operations, when perform'd upon small Parcels, are never equal, in Proportion, to the same Operations when performed upon large ones.

That I might still more effectually discover what passes in the Process of *Kermes*, and what Substances are separated from the Mineral, I took the Antimony of the two preceding Operations, weighing five Pounds all but nine Drams and an half of Loss. I also took the Liquor of the fixed Nitre, which had served in the six preceding Ebullitions, and of which I had two

Pounds thirteen Ounces; and, without adding any thing to it at each Operation, except well filtrated Rain-water, I made thirty Ebullitions, and as many Precipitations, one after another. From the Vessel there arose a sulphureous Steam, which blacken'd Silver when held above it: One might also not only discover this sulphureous Smell, but likewise that of a strong Lixivium, mixed with a small Quantity of an urinous volatile Substance.

This Steam, being condensed and collected in a Glass Head, turned the Syrup of Violets green, slightly render'd the Solution of corrosive Sublimate milky, and precipitated into a bright citron Colour the Solution of Mercury in the Spirit of Nitre.

At each Ebullition the Liquor of the Nitre, as I have already observed, disengaging some of the Particles of the gross Sulphur of Antimony, there was a Liver of Sulphur form'd by them. This Liver dissolves or divides the Reguline Part of the Mineral, and this Division is facilitated and promoted by the Attrition of the Parts of the Antimony, which the Ebullition keeps in continual Agitation.

This Attrition, caused by the Ebullition, appears to be necessary in this Process of the *Kermes*, because the alkaline Salt of the Lixivium cannot act upon the Reguline Part till the gross Sulphur of the Mineral is disengaged from it, in order to join itself to this Alkali, and form the Liver, which proves a Dissolvent to this Reguline Part: Now, without this Attrition, the Alkali could only form the Liver, with the Sulphur of the first Surfaces of the Pieces of Antimony. In this Case there would be a small Quantity of Liver, and consequently a small Dissolution of the Reguline Part. For this Reason, the first Ebullition never yields so much Precipitate as the second, nor the second so much as the third. This Progression has, nevertheless, its Bounds, beyond which it does not go.

The alkaline Liquor, being sufficiently impregnated with the Sulphur, and the Regulus of Antimony, ceases to act, and must be filtrated; first, that, upon the Filtre, it may disengage itself from the gross and unattenuated Parts of the Antimony, which have been detach'd from that Mineral by the reiterated Attritions during the Ebullition; and secondly, that, as it cools, it may deposit the Parts of the same Mineral, which have been sufficiently divided by the Liver, and which are become fine enough to pass through the Filtre with the Liquor as yet warm.

As long as the Liquor is hot, it is kept in a Motion rapid enough to hinder the fine Particles of the *Kermes* from reuniting into too large Molecules. In this Case the Particles pass thro' the Pores of the Paper with the same Ease the Liquor does: But, in proportion as the Liquor grows cool, the Rapidity of the Motion ceasing by degrees, these same Particles are collected, agglutinated to each other, and compose Molecules of such a Size, that they can no longer be suspended in the Liquid, but fall to the Bottom in a Magistery. It is impossible but the Lixivium must, at each Ebullition, lose a small Portion of its alkaline Salt; since this Portion must have been employ'd to compose the Liver, which has corroded the Reguline Part of the Antimony, precipitated with this same Portion of the Liver, under the Form of a red Magistery: For I shall afterwards shew, much more clearly than I have hitherto done, that *Kermes* is a Magistery of the Regulus of Antimony, united to the gross Sulphur of that Mineral, and to a small Portion of the alkaline Salt, which may be disengaged from it; or, in other Words, it is an Antimony which is not, strictly speaking, destroy'd, but of which the Arrangement of the Parts is changed by disengaging the gross Sulphur from the Interstices it possesses, which occasions a Rupture of the Sides of these Interstices, which, changing both their Situation and Form, mix with the new Compound of the Liver, and make it appear a Magistery, more or less coloured, in proportion to the Quantity of Alkali and Sulphur which is united with it.

But if it is not possible, that the alkaline Liquor shall not lose a small Portion of its Salt at every Ebullition, one may easily conceive, that it must only lose very little at each time; since, without the Addition of fresh Salt, it is able, after the Filtration, to act again upon the Antimony for a considerable Number of Times; and since thirty repeated Ebullitions of five Pounds of Antimony yielded seven Ounces of *Kermes*, always as beautiful and fine as the *Kermes* yielded by the first six Ebullitions, performed upon one Pound, and afterwards upon four Pounds, of this Mineral.

Observing that, at the thirty-sixth Boiling, this Liquor acted almost as well as at the six first, I made it serve for twenty more Boilings, without any other Precaution than putting aside the small Needles of Antimony, which increased, in Quantity, in proportion as the Boilings were multiplied. These twenty additional Ebullitions still yielded me five Ounces three Drams and an half of *Kermes*; whereas I had only seven Ounces from the first thirty Ebullitions.

I made ten Ebullitions more, which still yielded me four Ounces one Dram and an half of *Kermes*. Thus these thirty last Ebullitions yielded me two Ounces and five Drams of *Kermes* more than the first thirty. This Augmentation of the Product proceeds, as I have above observed, from this, that the

Attritions



Attritions of the Pieces of Antimony being multiplied, new Surfaces are thereby discovered, which furnish a new Sulphur to the alkaline Liquor; and this Sulphur, being added, renders the Liver more active and penetrating; or, in other Words, makes, as it were, a new Liver at each Ebullition.

There remains, as I have said, upon the Filtres a pretty considerable Quantity of fine Needles, mixed with a sort of earthy Sediment: I boiled this Sediment, which weighed near eight Ounces, twelve times, with the same alkaline Liquor, and it yielded me two Ounces three Drams and an half of *Kermes*.

By these seventy-eight Ebullitions I had, from my five Pounds of Antimony, one Pound four Ounces four Drams and twenty-four Grains of *Kermes*. It is not easy to tell, precisely, how much the Antimony lost of its Weight; for, perhaps, it retained, in the Interstices of its Needles, a certain Quantity of alkaline Salt, since it still weighed three Pounds six Ounces, which, joined to the Weight of all the *Kermes* drawn from the seventy-eight Ebullitions, yields an Augmentation of two Ounces four Drams and twenty-four Grains, including the Weight of the muddy Substance, deposited on the Filtres: Thus 'tis evident, that this Augmentation must be owing either to the Union of a Portion of the alkaline Salt with the rest of the Pieces of Antimony, or to the Union of this same Salt with the precipitated Magistery. There is no Doubt to be made but the alkaline Salt is united to this Magistery: This I asserted in my former Memoir, but shall prove it in this: But I cannot, in like manner, prove the Union of this Salt with the Antimony; so that this Point must remain conjectural. I shall now examine the Lixivium, which remained, of the seventy-eight Ebullitions: I distill'd it, and the first Steams furnished a gently sulphureous Liquor, which gave Marks of an urinous Volatile, of which I shall afterwards speak. About the Middle of the Distillation, a small Quantity of white Earth was precipitated.

After the Separation of this first Earth, I continued the Distillation of the Liquor, till a Pellicle appeared on its Surface, upon which long Crystals were formed in it, the finest of which melted a little on the Coals, and consequently must have been nitrous.

But as these Crystals were still mixed with a muddy, fat, and coarse Matter, I made a fresh Solution of them in Rain-water, and there was precipitated a second white Earth like the first, and which weighed four Drams sixty Grains. The Liquor which was separated from this Earth being evaporated, new Crystals were formed in it, but like those of a foliated Earth, that is, in flat Leaves almost square, some of which were nevertheless triangular. They only preserve this Figure so long as they are kept dry; for as soon as they are exposed to the Humidity of the Air, they quickly run *per Deliquium*, and in that State, tho' indeed slowly, crystallize themselves again; and in a fat Sediment which is deposited, resume the Forms of prismatic Crystals, no Part of which is any longer fusible upon Coals; upon which they crackle, and break like vitriolated Tartar; tho' that Crackling does not in the least resemble the Decrepitation of Sea-salt.

However hot the Coals may be render'd by blowing them, these Crystals do not melt upon them, but are converted into an earthy white Substance, which has the same Appearance with that Earth which had subsided before their first and second Crystallization.

These Crystals, as I have said, were form'd in a fat and unctuous Sediment proceeding from the Solution *per Deliquium*, or Mother-water of the Crystals, in the Form of foliated Earth. I shall now examine this Solution by Distillation. I made use of five Ounces of it, which at first yielded an aqueous Liquor, which smell'd like animal Substances when under Distillation. There was afterwards yielded a volatile urinous Spirit, which was sufficiently pungent, of a beautiful Yellow, and which weigh'd two Drams. And lastly, there remained in the Retort two Ounces two Drams and an half of a Caput Mortuum, which, being subjected to a greater Fire, yielded six Grains of a volatile Salt, in a concrete or dry Form. After having broken the Retort, I found a white and red Mass, from which exhal'd an ammoniacal Smell, like that which comes from Vessels in which Sublimations of Sal Ammoniac have been made.

This Mass, when broken, resembled the *Scorie* of Regulus, and was full of Bubbles or Cavities, which were interspersed with small Grains of a fine and sparkling Regulus, which had been reviv'd during the Fusion. These *Scorie*, or saline Masses, as they became moist by being expos'd to the Air, assum'd a greenish Colour, and smell'd like Liver of Antimony. They would have been entirely dissolv'd *per Deliquium*, if I had left them long expos'd to the moist Air; but that I might produce this Effect the sooner, I pour'd boiling Water upon them, which assum'd a brownish-green Colour. Upon filtrating it when hot, there remain'd upon the Filtre a green Matter, which consisted of Sulphur; and there pass'd thro' the Pores of the Paper a Liquor, which, as it became cool, allow'd a pretty considerable Quantity of *Kermes* to subside.

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This saline Liquor, swimming above the new *Kermes* when evaporated, yielded me Crystals of different Nature from those of the foregoing prismatic Salt. These Crystals melt pretty soon, and appear to be a crystalliz'd Alkali, or an alkaline sulphureous Salt, which, while it remains in that State, may be call'd a Salt of the Liver of Antimony; for it has at one and the same time a lixivial Taste, and a Taste of the Liver; but if that sulphureous Salt is dissolv'd with cold Water, there remains a true vitriolated Tartar at the Bottom of the Solution.

This sulphureous Salt or Liver bubbles upon burning Coals, and becomes yellow, which is a Proof, that there is Sulphur contained in it. It blackens and corrodes the Plate of Silver upon which it is melted by the Fire, and turns the Syrup of Violets green. It makes an orange-coloured Precipitation in the Solution of corrosive Sublimate, and on the Surface of the Liquor leaves a sulphureous Pellicle floating, which, when taken off, burns like the common Sulphur. In a Word, it has all the Characters necessary to give it the Denomination of a sulphureous Salt, or Salt of the Liver of Antimony. It is different from the Salt which may be extracted from the Liquor of fixed Nitre, which has not pass'd thro' the Ebullitions with the Antimony; for from that Liquor evaporated, I had only some few long and prismatic Crystals, like those I have above described, and which, like them, became white upon the Fire, without either melting or decrepitating; and which also, like them, burst with a crackling Noise.

I now return to the white Substance deposited during the Crystallization of the sulphureous Salt, or Salt of Liver of the Lixivium of seventy-eight Ebullitions of *Kermes*. To look at it, one would take it for diaphoretic Antimony; but it is no such thing, because Aqua Regia dissolves it, but has no Effect upon common diaphoretic Antimony. It ferments with the Acids of Nitre and Vitriol. A Regulus is reviv'd from it upon burning Coals; and before it rises, one sees small Flashes break from it of the same Colour with the Flame of Sulphur, and which disappear instantly. As this Powder is not diaphoretic Antimony, so neither is it the *Materia Perlata*, since Acids do not act upon this last Preparation, any more than on diaphoretic Antimony. All the white Substances which I separated from melted Antimony, with different alkaline Salts, were of the same Nature with that I have now mention'd. And as I know no Preparation of Antimony to which I can compare it, why may we not call it a *white Kermes*, or a *white antimonial Magnesia*, since, when taken internally, in a small Dose, it proves diaphoretic, and does not excite a Nausea?

I now resume the Examination of *Kermes*, which I propos'd to make, and which is a necessary Supplement to my former Memoir.

This Powder is always found of different Colours, in proportion as the alkaline Liquor employ'd has been more or less concentrated. If it is richly impregnated with Salts, the *Kermes* will be of a very deep Red; or, which amounts to the same, if the Ebullition has only lasted for a short time, the *Kermes* will be pale; because there will not be enough of Phlegm evaporated from the Liquor, in order to concentrate the Salts. In order to prove this, we need only pour a fresh, pure, boiling Water upon the Filtre, on which the boiling Liquor which contains the *Kermes* was pour'd, and the *Kermes* will by that means be much paler than it would have been without this Addition of Water.

When we let a Dram of *Kermes* drop into three Drams of Aqua Regia made of the Spirit of Nitre, and the Spirit of Salt, the Dissolution is made with a great Ebullition, and an intense Heat, and from the Spirit of Nitre arise very red Vapours. When the Ebullition is at an End, the Smell of the Mixture is chang'd, and becomes sulphureous. After the Fermentation is totally over, there remains a yellow Sediment, above which there is a Liquor upon whose Surface a sulphureous Pellicle appears, which, when taken off with a Piece of Paper, burns like common Sulphur. I wash'd and dry'd this Sediment, and next Day found a Globule of liquid Mercury, weighing somewhat more than the Fourth of a Grain. Now, on Supposition, that this Globule of Mercury was found there, without any Circumstance that could lay a Foundation for our suspecting, that it existed formerly in the Antimony, it would be no more than the two hundredth and eighty-eighth Part of the Dram of *Kermes*, upon which this Experiment was made, which is far from being the Quantity of Mercury which several Authors maintain may be extracted from Antimony, by raising it in Flowers with Sal Ammoniac, and by reducing these Flowers by fixed Salts. I can affirm, by the way, that the Glass Vessels I used on this Occasion, had never been employ'd in any Process where the least Mercury had been an Ingredient: But I must at the same time confess, that having repeated the same Process with other *Kermes* of the same Preparation, and the like Aqua Regia, I could never see any more Mercury.

The white Powder, in the Middle of which this Mercury was found, weigh'd forty-two Grains. I put it into a Retort, in order to raise the Quantity of Sulphur it might contain.



This Sulphur rose with the first Fire, and adher'd to that Part of the Neck of the Retort, where it comes out of the Furnace. Afterwards there appeared a black Circle, then a third white Circle of the Flowers of Antimony, or rather of the Regulus, interspersed with small Needles. The Liquor in the Receiver was charg'd with sulphureous Flakes. In fine, the red Mass, at the Bottom of the Retort, was a Species of *Crocus Metallorum*, or rather a *Magnesia Opalina*, which is made, as is well enough known, with Nitre and Sea-salt. Now in this Experiment, I employ'd an *Aqua Regia*, composed of the Acid of Nitre, and of the Acid of Sea-salt. These two Acids reassum'd a Basis in the alkaline Salt of the *Kermes*, became regenerated, and operated during the Fusion; which Effect these two Salts, mix'd with Antimony, produce in the ordinary Process of the *Magnesia Opalina*. The Regeneration of these two Salts with the Alkali of the *Kermes* will be more fully prov'd afterwards. From this long Detail it follows, that the *Aqua Regia* does not dissolve the whole reguline Part of the *Kermes*; that, in all Appearance, it only attacks those Particles of it, some of whose Surfaces present themselves naked to the Action of this Acid; that such of them as are cover'd with a continued Layer of the sulphureous Matter of the Liver, resist the Action of the *Aqua Regia*; that one cannot by means of this Acid exactly separate the sulphureous Parts of the *Kermes*, because the white Powder which precipitates from it, contains, together with the gross Sulphur, a considerable Portion of the Regulus, which may well be supposed to make up the half, or thereabouts, of this Powder. But notwithstanding this Inconvenience, *Aqua Regia* is the most proper Acid for making the Separation of the gross Sulphur which is still naturally in the *Kermes*; for if I employ the Spirit of pure Salt, it corrodes the reguline Part, and subtilizes and attenuates the Sulphur so strongly, that for the most part it evaporates; so that when I pour Rain-water upon this Dissolvent, all the Regulus of the *Kermes*, and that which remains of the Liver, and of the alkaline Salt, are confusedly precipitated into a white Powder, which would be a true Powder of *Algaroth*, (or *Mercurius Vitæ*) if we had not Reason to suspect, that it precipitated itself with a Portion of the alkaline Salt of the *Kermes*. In fine, there is no floating Sulphur separated from this Precipitate, as happens when I make use of *Aqua Regia*.

If instead of the Spirit of Salt I employ the Spirit of pure and concentrated Nitre, there happens, so soon as it is poured upon the *Kermes*, so great an Effervescence, that there is no Doubt to be made, but the Mixture would take Fire, if the oily Principle of the gross Sulphur of this Powder was more disengaged from the vitriolic Acid which retains and clogs it. The red Vapours of the Spirit of Nitre even become impregnated with a Part of this Sulphur, which volatilizes itself during the Effervescence, since being collected by a Glass Head, or any other means, they turn to a Spirit of Nitre of a greenish Tincture. But notwithstanding this great Effervescence, there is no Dissolution of the reguline Part of the *Kermes* made; since, if the Mixture is allow'd to settle after the Effervescence is over, and it after this you pour off the Acid which swims above the Powder now become white, you precipitate nothing of that Regulus by pouring Oil of Tartar upon it.

This *Kermes* becomes white by the Action of the nitrous Acid, and, forc'd by the Fire in a Retort, yields a great deal of burning Sulphur, and red Flowers of Antimony, and leaves a whitish Mass of the Calx of Antimony; yet this Mass being still united to a considerable Portion of the gross Sulphur of Antimony, which it quits with Difficulty, remains a little yellowish, and interspersed with red Points on its Surface. If it is strongly forced by the Fire, it vitrifies in some measure; and the Acid of the most fixed Sulphur, or even the entire Sulphur, which the Fire has not been able totally to expel, forms antimonial Needles, with the rest of the reguline Part, which is not become vitrified.

By substituting in the room of *Aqua Regia* the Spirit of Salt, and the Spirit of Nitre, a well concentrated Oil of Vitriol, there only ensues a Small of Sulphur, which the Fermentation augments; but no gross inflammable Sulphur is separated, as it happens, when *Aqua Regia* is employ'd. We must then use a Menstruum capable of dissolving the reguline Part of the *Kermes*, if we incline to prove the Existence of a gross Sulphur united with the *Kermes*; and this Menstruum or Dissolvent is *Aqua Regia*. I now go on to other Operations.

I shew'd, in my former Memoir, that from an *Æthiops* composed of *Kermes* and Mercury, I had a Cinnabar of Antimony, especially when I employ'd a certain *Kermes* among the Number of those I had bought. I can now affirm, with a kind of Certainty, that this *Kermes* was chang'd by an Addition of common Sulphur, since with the Mercury and *Kermes* of my seventy-eight Ebullitions, I could not sublime a true Cinnabar, but a red, sulphureous, or bituminous Substance, which, by a violent Fire, melts and runs along the Sides of the Retort like *Spanish Wax* melted, which it resembles in its Colour and Lustre. This same Experiment laid a Foundation for my examining the following Phenomenon:

I mixed two Drams of my *Kermes* with two Drams of very pure Mercury. We have pretty good Reason to suspect, that during the Trituration, which lasted for a considerable while, there might have been some small Globule of the Mercury lost. Nevertheless, by forcing this *Æthiops* with a strong Fire, two Drams and five Grains of Mercury were reviv'd. We can only ascribe this Augmentation of Weight to the *Kermes*; and this I had observed in my Experiments made in 1734. tho' I made no mention of it in my Memoir. I do not from this pretend to conclude, that the *Kermes* supply'd the Mercury I employ'd with this additional Mercury, but that there was an Amalgama formed of five Grains of the Regulus of *Kermes* with the two Drams of Mercury. This is prov'd by the Mercury's remaining fat, less shining, and leaving a Tail, as all Mercury incorporated with any metallic Substance does. Thus this might be a way, tho' indeed a pretty tedious one, of making the Amalgama of Regulus of Antimony and Mercury, which is known to be a pretty difficult Affair, and for which the late Mr. *Hornberg* employ'd a Regulus of Antimony, in the Preparation of which Copper was an Ingredient.

The Mass of *Kermes*, reduced to a *Crocus Metallorum*, which remained in the Retort, being separated from some sublim'd Parts of the inflammable Sulphur, and from some of the antimonial Flowers, weigh'd only one Dram and thirty-nine Grains. I boiled this in Rain-water, in order to dissolve its Salt; and this Lixivium precipitated into a yellow turbith Colour the Solution of Mercury in the Spirit of Nitre. Now this yellow Colour shews, that I was not mistaken, when, in my former Memoir, I advanced, that by the Assistance of a great Fire, and by the Interposition of Mercury, which yet only serves in this Case to divide the different Substances composing the *Kermes*, one might disengage from the gross Sulphur united to this Matter a Portion of the vitriolic Acid essentially join'd to this gross Sulphur, transfer this Portion of Acid to a Part of the alkaline Salt of the same Powder, and form by this new Union a vitriolated Tartar, since in the present Experiment I precipitate the Mercury into a yellow turbith Colour, as happens when a Solution of common vitriolated Tartar is used for that Purpose.

This same Mass, when its Salts were thus dissolv'd, weigh'd only eighty-four Grains and an half; so that there were in my two Drams of *Kermes* twenty-seven Grains of a Salt which I cannot ascertain to be entirely a vitriolated Tartar, because there might have still remain'd in it a Portion of the alkaline Salt, which might not have been acted upon by the Acid of the Sulphur. But this Precipitation of the Mercury into a yellow turbith Colour is sufficient to prove what I have said upon this Point, which is, that the Acid may be disengaged from the inflammable Principle, since in the present Case it quits it, in some measure, in order to unite itself with the alkaline Salt of the *Kermes*. And indeed it is shewn not only by this, but also by the preceding Experiments, that *Kermes* is a Mixture of the Regulus of Antimony, of the gross Sulphur of that Mineral, and of a perceptible enough Portion of alkaline Salt. It is by these Experiments also shewn, that this gross Sulphur may be decomposed by Fusion in a strong Fire, as common Sulphur is decomposed in the Operation for the Spirit of Sulphur. From this Phenomenon a Reason may be easily drawn, why we cannot extract Cinnabar from this Mixture of *Kermes* and Mercury, which is, because in this Operation the gross Sulphur of the Antimony being decomposed, at least in a great measure, by the Force of the Fire, the Acid, which with the Bitumen of the Earth, or, if you will, an oily Principle, composed common Sulphur in the entire Mineral, has quitted this fat Substance, in order to unite itself with the alkaline Salt, which greedily receives an Acid, and form a vitriolated Tartar, whilst the rest of the undecomposed Sulphur remain'd united with the Surplus of the Alkali under the Form of Liver. Now so long as the Sulphur remains united with a fixed Salt, it cannot leave it in order to join Mercury, and rise with it in Cinnabar.

There is yet another Experiment which proves this; and tho' I have already given an Account of it in my former Memoir, yet for the sake of Perspicuity I shall here repeat it. I took one Dram nine Grains or eighty-one Grains of *Kermes*, and a Dram and an half of corrosive Sublimate; the Mixture, when well rubb'd together, was put into a Retort. The Butter of Antimony came off first, the Mercury came next, which was follow'd by a little Cinnabar sublim'd to the Arch of the Retort, and by a Sulphur which was sublim'd in yellow Flowers, and which burned upon Charcoal. The Mercury reviv'd weigh'd seventy Grains, so that there were thirty-eight Grains of Acid concentrated in my hundred and eight Grains of corrosive Sublimate, that is, twenty-five Grains and one Third in each Dram, exclusive of the Acid which was united with the Alkali of the *Kermes*, as I shall afterwards shew.

We have therefore no Reason to be surpris'd, if Sublimate is the most corrosive Preparation of Mercury, since the red Precipitate, for Instance, contains only seven Grains of Acid in each Dram. The Mass, almost of a blackish-brown Colour,

which



which remain'd at the Bottom of the Retort, weigh'd thirty-two Grains and an half, tho' by its Strata it resembled fus'd Antimony; it nevertheless contain'd fifteen Grains of Salt, since after beingedulcorated with distill'd Water, it only weigh'd seventeen Grains and an half. The Water of this Lotion gave a deep-green Colour to Syrup of Violets, just as a Solution of Sea-salt does, tho' it produc'd its Effect more slowly. It makes a white and plentiful Precipitation with the Solution of Mercury in the Spirit of Nitre. It produces no Change in the Solution of corrosive Sublimate. It precipitates Silver into a Luna Cornea, and at last, crystallizing, it yields a cubical Salt which decipitates on *Charcoal*. Thus it is a common Salt, regenerated by the Union of a Portion of the Acid of the Salt, which has quitted the Mercury of the corrosive Sublimate, with an alkaline Basis, and this Basis could be nothing else than the alkaline Salt of the *KERMES*. This Experiment then is an additional Proof, that this Salt is contained in the *KERMES*. It is now my Business to determine how much the *KERMES* contains of each of the three Ingredients which enter its Composition. The preceding Experiments could give me no Satisfaction in this Point, but the following seems to decide the Matter pretty exactly. I levigated twenty-four Grains of the Filings of Needles, which I afterwards mix'd in a Crucible, with a Dram of *KERMES MINERAL*. The Fusion was made as in the common Process of Regulus, and there were *Scoriae* form'd in it; but during the Fusion there rose to the Edges of the Crucible, which was cover'd, a white Powder interspersed with Needles, which was nothing but Regulus. I separated the *Regulus* from the *Scoriae*, and found that I had of it ten Grains and an half. When these *Scoriae* were put into Spirit of Nitre, the Iron dissolved, and the sulphureous Part of the *Kermes* continued separate from the Solution of the Iron. I poured off the Liquor, and precipitated the Iron by Galls; and the inflammable Sulphur being separated, I then had ten Grains and an half of pure Regulus in a Lump, and near four Grains of Reguline Flowers, which in all amount to fourteen Grains and an half.

Two Grains at most made up the Reguline Portion, which might have remained in the *Scoriae*, since to me they appeared to contain nothing but Iron, alkaline Salt, and Sulphur. Thus, according to this Experiment, there must have been sixteen or seventeen Grains of Regulus, in a Dram of *Kermes*; thirteen or fourteen Grains of alkaline Salt, and forty or forty-one Grains of common Sulphur.

I here finish the Examination of *Kermes* made by Ebullition, and come to consider a quicker Method of preparing it by Fusion, observing at the same time both the Choice and Proportions of the alkaline Salt, without which the *Kermes* would neither have the Fineness, the Lightness, nor the Colour, which are essential to it. *Mem. de l'Acad. R. 1735.*

*Continuation of Mr. GEOFFROY's Observations on KERMES MINERAL.*

That no Circumstance might be defective in our Chymical Examination of the *KERMES MINERAL*, it was necessary to imitate the Practice of some Chymists, who have substituted the Fusion of Antimony with an alkaline Salt, instead of the Ebullition of that Mineral with the same Salt; and this will, at the same time, determine the Proportion of Salt necessary to be used, for obtaining the *Kermes* as fine, beautiful, and well-colour'd, as by means of Ebullition.

In order to arrive at a greater Certainty, with respect to this Proportion, I always used *Hungarian* Antimony, very finely pulverized, which facilitated its thorough Mixture with the alkaline Salt; and performed all my Fusions in Glass Retorts, that nothing might be lost of those Substances which might separate from the Compound during the Operation. At last, after I had try'd Experiments with Antimony, I substituted instead thereof its Regulus, and put it in Fusion in like manner with an alkaline Salt.

An Ounce of Antimony levigated, and half an Ounce of Nitre fixed by Charcoal, having been well mixed, and put in a Retort, yielded a Phlegm with white and thick Vapours. The Surface of the Matter, after some time, took a red Colour, which was a sure Sign, that the gross Sulphur of Antimony began to unite with the alkaline Salt, and to form a Liver. Afterwards it distilled some Drops of a yellow Liquor, and then there appeared, in the Neck of the Retort, a concrete, volatile Salt, which was as penetrating as common volatile Sal Ammoniac.

If you have a Mind to separate this Salt, you must take the Retort off the Fire as soon as it is formed, or else the Continuance of the Heat, with the succeeding nitrous Vapours, will make it disappear; and then the Liquor in the Receiver, being no longer acid or alkaline, smells of nothing but an Empyreuma. When you have taken away the volatile Salt, in order to make Experiments of it, and to be assured, that it has all its due Properties, if you replace the Retort over the Fire, and augment it by Degree, the Matter heaves and pulls up, and be-

comes of a lively Red, over all its Surface, and at last some white and farinaceous Flowers arise to the Top of the Retort.

This Proportion of two Thirds of Antimony to one of fixed Nitre, leaves no Regulus in the Bottom of the Retort. This I am assured of, by repeating the Operation five or six times.

If you make use of equal Parts of Antimony and fixed Nitre, for Instance, an Ounce of each, the Mass sooner becomes red upon the Surface, runs more equably in Fusion without swelling, and deposits at the Bottom a Regulus, which, in this Quantity, usually weighs eighteen or nineteen Grains, besides the small Particles which are not reunited to the main Lump, but remain dispersed in the saline and sulphureous *Scoriae* that are found above the little Mass of Regulus.

In performing the same Operation with two Parts or one Ounce of Antimony, and three Parts or an Ounce and half of the same nitrous Alkali, we shall find, for one Ounce of Antimony, forty Grains of Regulus, besides the scatter'd Particles. It is remarkable, that more white Vapours are elevated with this, than with the two preceding Proportions; and also, that more volatile concrete Salt is thence extracted.

That I might render my Account of Processes on the *Kermes* complete, I try'd the Fusion of Antimony with other alkaline Salts, substituted in the room of Nitre fixed by Charcoal. I knew very well, that they all formed a Liver with the gross Sulphur of the Mineral; but it was necessary to know if there were any Difference, and whether the Products were uniform.

First then I made use of Nitre fixed by Tartar: This alkaline Salt had been dissolved, filtrated, and afterwards reduced to a white, dry, saline Mass. Half an Ounce of this I mixed with an Ounce of Antimony, reduced, as I said, to a very fine Powder. After the Phlegm there arose red Vapours, which had the Smell and Taste of Spirit of Nitre, but lasted not long. These were succeeded by white Vapours, and these again by a volatile Salt in a dry Form. When I lifted up the Dome of the Furnace, I perceived, that tho' the Salt which I used had, in common Essays, shew'd all the Signs of a true fixed Alkali, there were yet some Particles of Nitre, which had not been alcalised by the Detonation of that Salt with the Tartar; for they ran into Fusion anew with the Sulphur of the Antimony, and kindled one after another. This Fulmination was much more sensible in another Experiment, where I used four times the Quantity of the Mixture. I observed, moreover, that in the Places where the Nitre fulminated, it left white Spots, which, taken off with Care, consisted of a diaphoretic Antimony. But I took no Care to prosecute my Observations this way any farther.

The Mass which at last remained in the Retort afforded me no more collected Regulus, than in the first Operation which I made, in the same Proportion, with Nitre fixed by Charcoal. When I augmented the Proportion of the Nitre fixed by Tartar, I recover'd a Regulus, as in the preceding Experiments.

Thus these two Alkalies, proceeding both from fixed Nitre, either by means of Charcoal, or Tartar, afford us no perceptible Difference in their manner of acting upon Antimony. This, indeed, ought to be the Case, but it was good to be assured of it from Experiments.

Let us now proceed to the Trial of Salt of Tartar, which we know is the purest of all Salts. When it is well made, we find in it nothing of a foreign or of a volatile Salt, which we almost constantly meet with in Nitre, in whatever Manner it is alcalised. This Salt of Tartar, when I used four Drams of it with an Ounce of Antimony, separated nothing at all of a Regulus; but every time I repeated the Operation with six Drams or an Ounce of that Salt, I obtained forty or fifty Grains of fine Regulus from every Ounce of Antimony.

In this Operation, no volatile Salt is sublimed, because I use a pure fixed Alkali, whereas when I make use of Nitre, fixed either by Charcoal or Tartar, I meet with Particles not alcalised, which still retain all their Acid. These Particles of Nitre, completing their Decomposition, abandon their alkaline Salt to the Acid of Sulphur, which together make a kind of vitriolated Tartar; and the Portion of nitrous Acid, when disengaged from the other Parts of the Nitre, unites with another Portion of the inflammable Principle of Sulphur, and forms with it the volatile Salt which I found, and just now spoke of. Perhaps we might account for this in a more simple way, by supposing something Ammoniacal in the Nitre; and in this Case, the Explication I just now gave of it would be useless.

The Salt extracted by Lixivation from the calcin'd Lees of Wine, after it is dry'd and calcin'd, ought to be a pure Alkali of the same Nature as Salt of Tartar, because it has an Original almost like it; and hence also this Salt, being melted with the Antimony, produced no Alteration. There appeared, as in the Experiment with the Salt of Tartar, a white Vapour, some farinaceous Flowers, and a salt Liquor somewhat urinous, and such as I had obtained from a Process with Salt of Tartar. Both of them produce a white Precipitate in a common Solution of Mercury in Spirit of Nitre, which Precipitate afterwards becomes greyish. As long as I used but one half Ounce



of this Salt of Wine-lees, with an Ounce of Antimony, I found no Separation of a Regulus; but when I put six Drams, it produced forty Grains of Regulus, as the six Drams of Salt of Tartar had done before.

It remain'd to know what Effect the Salt of Pot-ash would produce. Half an Ounce of this Salt, which had been purify'd by a Solution in cold Water, in order to separate it from the vitriolated Tartar which it contained, afterwards dry'd, and then mixed with an Ounce of Antimony, shew'd no Sign of volatile Salt. But the slight farinaceous Dust, which was sublimed, as in the preceding Experiments, was of an Orange-colour, which shew'd some small Difference between this Salt and the other alkaline Salts which I had made use of before. The Liquor, convey'd into the small Receiver, had a weak, volatile Smell, and precipitated a Solution of Mercury to a white Coagulum, which afterwards assum'd the yellow Colour of Turbith. Hence we may conclude, that it contains a little of the Acid of Sulphur, which was disengaged during the Fusion of the Mixture; and that besides these Acids, there is also in the Liquor a small Quantity of an urinous, volatile Spirit, since it makes a white Precipitation in a Solution of corrosive Sublimate: Besides, after Precipitation, it forms upon the Liquor a Pellicle with all the Colours of the Rainbow, which is a sure Mark of a sulphureous Acid. In this Operation, where we took two Parts of Antimony for one Part of Salt of Pot-ash, we obtained no Regulus.

Being sensible therefore, that this Proportion of alkaline Salt, of whatever Kind it may be, afforded no Regulus, which, when that Proportion was augmented, gather'd into a Mass sufficiently sensible, I was willing to try what would happen from the Diminution of that Proportion, and, in pursuance of this Resolution, took but two Drams of Salt of Tartar for one Ounce of Antimony.

There was no sulphureous Matter sublimed, but there were always some white Vapours; and that small Quantity of Liquor which passed into the Receiver, was in a slight Degree urinous; the Mass melted in the Retort was half vitrify'd, and the Needles of the Antimony were totally destroy'd. One might compare it to those Livers of Antimony which are prepared for Herpes, in the Preparation of which we have been saving of Nitre, in not allowing the common Proportion, which is of equal Parts of that Salt and Antimony.

To make it appear, that the Comparison is exact enough, I melted an Ounce of Nitre with four Ounces of Antimony in a Crucible. The Nitre, in fulminating, carry'd off from the Mineral a Part of its Sulphur, and even of its Regulus; for, during the Detonation, there was an Elevation of Flowers, and these Flowers were very red. The Detonation being at last ceased, I kept the Mixture for some time in Fusion, and there remained a *Crocus Metallorum*, resembling that which was the Result of my Operation by the Retort: But this last had lost nothing of its Sulphur, nor of its Share of Regulus, because I used an alkaline Salt, which does not fulminate, whereas, in the Experiment which I made in the Crucible, I made use of Nitre which fulminated.

When I augmented the Proportion of alkaline Salts to three Drams, for one Ounce of Antimony, I found in the Retort a reddish Mass nearly of the Colour of Liver of common Antimony, with its interior Substance divided into little Surfaces, striated, in form of Needles, like the Lapis Hæmatites. Thus it appears, that the Proportions of two and three Parts of Nitre, to eight Parts of Antimony, are too weak to open the Antimony to a sufficient Degree; for the Mass which remains after Fusion, contracts no Humidity from the Air. There must be, at least, four Parts of alkaline Salt to eight of Antimony, that the melted Mass may be capable of Solution; and it plainly appears, that it ought to be soluble, and soluble in all its Parts, that it may afterwards be capable of precipitating the *Kermes* by Ebullition in common Water, without any Separation of its Portion of Regulus.

This Proportion being settled as the Standard, throughout all the Experiments which I made, most of which I have suppressed, that I might not make this Paper of an unnecessary Length, I go on to examine the *Kermes* precipitated from Masses capable of Solution.

I boil'd them two Hours, or thereabouts, in two Pints of Rain-water, and when the Liquor was reduced to Half, or at Quarter, I filtrated it. It must be observed, that, in the Time of Boiling, the Liquor had a very sulphureous Smell, and shew'd Signs of something volatile and urinous, as in the simple Operation on the *Kermes*, performed in the ordinary way by Ebullition.

The Liquor, having been filtrated boiling-hot, thro' a double Paper, into a China Basin, into which, by way of Precaution, I had before poured two Pints of boiling Water, for Reasons which I shall declare hereafter, as it cool'd, there was commonly precipitated a red Powder. I decanted and filtrated the cold Liquor, and poured it again upon the Residuum, and boiled them together; I filtrated again, and repeated the Boiling and Filtration three times.

As to the Masses, which contract not the least Humidity from the Air, as those where I put but three Drams of alkaline Salt to an Ounce of Antimony, after long boiling, there was precipitated nothing but a gross Magistery of the Colour of Oker, which is always the Colour of *Kermes*, when it is ill prepared, whether it be by Fusion, or in the ordinary Way, by simple Ebullition. This proves, that the Proportion of three Drams of alkaline Salt to an Ounce of Antimony is no good Proportion.

The Mass which results from hence, is to be look'd upon as a *Crocus Metallorum*, since we also find some Particles which resemble it upon the Filtre. 'Tis true, if we repeat the Boilings, and add a little alkaline Salts to each Boiling, we shall come at last to reduce the whole Mass to a colour'd *Kermes*; but the Work would be as long as what I spoke of in my preceding Memoir, and the Chymists, who prepared the *Kermes* by Fusion, had no other View than to shorten this Labour.

However, tho' this Proportion be not sufficient to reduce Antimony to a *Kermes*, it opens it enough to render it of some Service in Ptisans made of the sudorific Woods, in which it is customary to boil crude Antimony ty'd up in a Knot, without considering that it can communicate nothing to the Decoction, if it be not first open'd by some acid or alkaline Salt. For this Reason a famous Empiric, whose Ptisans were in great Repute during his Life, prepared his Antimony by Fusion with Salt of Wormwood, and then boiled it with the Woods.

If the Liquor be too much evaporated before Filtration, there is precipitated, during Refrigeration, a gross Matter like a grumous Mucilage; because the *Kermes* is not dispersed in a sufficient Quantity of Liquor to admit of its precipitating by Degrees; besides the Concentration of the alkaline, saline, sulphureous, and reguline Liquor in this Case, the great Quantity of Sulphur, collected into too small a Space, is much more disposed to reunite, and the Molecules of this Sulphur, approaching one another, form, in spite of Lotions, a kind of resinous and shining Covering upon the Mass of these Magisteries, which is very perceptible after drying.

But the Proportion of alkaline Salt being such as is agreed, and such as my Experiments have taught me, there is no greater Quantity of Liver formed than what is necessary to divide the Reguline Part, to reduce it into Particles fine enough to pass thro' the Pores of the Filtre, and to keep those Particles clean and free from that glutinous Pellicle, which would reunite them in gross Molecules, and render the Precipitation grumous. Besides, if there be too much alkaline Salt, the Excess of that Salt reduces the Regulus; and this Regulus, so reduced, is purely lost, as to the *Kermes*, the Preparation of which we have in View.

In order to remedy this Inconvenience, of the too sudden Coalition of the Particles of the *Kermes*, I put, as I have already said, boiling Water into the Bowl placed under the Filtre, that if the Evaporation of the Liquor has been carry'd too far, the Salt, which by that means alone would be too much concentrated, may extend itself afresh in this warm Water, and become more capable of keeping the Parts of the Antimony, which it has attenuated, at a Distance from each other. This Method I propose, retards the Condensation occasioned by the Cold of the external Air, which, without this, would be too sudden. And, indeed, Experience has convinced me, that, by this means, the *Kermes* was precipitated much finer, and of a much more lively Colour, than when I put no boiling Water into the Bowl. Besides, the *Kermes* must be dry'd in the Shade, because a too brisk Heat makes the Particles of the Sulphur coalesce, and form the above-mentioned Varnish.

I shall not give the Preference to any one of the Salts in particular which I employ'd in these Processes of the *Kermes* by Fusion, because, with each of them, I procured a Magistery equally beautiful, when I us'd them in the same Quantity.

I have also observ'd, that whatever alkaline Salt I employ'd, whether in the Preparation of the *Kermes* by Ebullition, or by Fusion, there was always a considerable Quantity of white Earth, separated from the Mixture when dissolved in boiling Water. I have spoken of this Earth in the former Part of this Memoir.

From all I have said, it should seem, that the precise Quantity of alkaline Salt, which must be mix'd with two Parts of Antimony, in order to reduce it to a fine *Kermes* by Fusion, cannot be discovered but by making Experiments. I confess it was in this Manner that I arrived to a Certainty about it; but I might have also discover'd it, by reflecting on the Analogy which this Process bears to the common Manner of preparing the *Liver of Sulphur*, which, if well made, ought to dissolve Gold by Solution, or render it, if I may so speak, soluble, so that it may pass thro' the Filtre, when the Mixture has been dissolved in Water: Now this Proportion of a Liver of Sulphur, well prepared, consists in equal Parts of alkaline Salt and Sulphur mix'd together; and the entire Mass, resulting from the Mixture, dissolves totally in Water, without any Part of the Sulphur separating from it. The Truth of this is well enough known; but however exact the Analogy, or, rather, the Relation



lation between these two Processes may be, it was still necessary to know the precise Quantity, or at least very near so, of the inflammable Sulphur that Antimony can contain. This can no otherwise be done, than by finding by different Experiments, what Quantity of common Sulphur must be used in order to restore a purified Regulus to an Antimony richly furnished with Needles. This Attempt I myself made; however, I gave a Detail of my several Essays for that Purpose. By making all my Experiments in Retorts, that I might lose none of the Mixture, I was assur'd, that by mixing two Drams of Sulphur with one Ounce of Regulus, we shall find a Piece of Antimony regenerated, with beautiful Needles, and which does not differ from the best chosen *Hungarian* Antimony, without any Part of the Sulphur being sublim'd, or raised to the Neck of the Retort, which happens when a larger Quantity of it is used. There is still another Method of ascertaining the Proportion of Sulphur contained in Antimony, which I shall reserve for another Memoir, where I shall lay down the Method of trying Antimony, and the distinguishing Characteristics of its Purity.

Not satisfied with having regenerated the Regulus into a true Antimony, by a just and exact Proportion of Sulphur, resembling a Piece of well-chosen *Hungarian* Antimony, to which I chose to compare it; I made use of this regenerated Antimony, in order to make *Kermes* by Fusion: I took an Ounce of it reduced to Powder, to which I added half an Ounce of Nitre fixed by Charcoal; and I had the same Sublimations, and the same Masses, I used to have, when I made use of *Hungarian* Antimony. All the Difference I could possibly observe was, that the Substance was more difficultly fused, and the Mass was of a more brownish Colour; but when I dissolved it in boiling Water, a Magistery precipitated from it almost as beautiful as when *Hungarian* Antimony was used.

After the entire Precipitation of the *Kermes*, the Liquor or Lixivium yielded me a white Earth perfectly like that before-mentioned.

That I had given the Regulus the Proportion of Sulphur, necessary to regenerate it into Antimony, is proved from this, that if there had not been a sufficient Quantity of it, I should have found a Regulus in melting this Antimony with half the Quantity of alkaline Salt; because an alkaline Salt does not destroy the Regulus when it acts alone. If, on the other hand, there had been too much Sulphur, its Excess would have been sublim'd in Flowers during the Regeneration. Now in order to shew, that the alkaline Salt alone does not attack the purify'd Regulus, and cannot separate from it a Magistery like the *Kermes*, let it only be observed, that if we melt Powder of Regulus mixed with fixed Nitre, the unfixed Part only of that Salt acts by sublimating gently, and reduces the Parts of the Regulus, which touch it, into a Powder of a yellowish Colour, which is a Species of *Diaphoretic*; the Remainder of the Regulus is fus'd, and rises above the Salt in little Drops, which being collected by the Solution of the Salt in the boiling Water, amounted almost to the Weight of the Regulus employ'd; what is wanting of it, is that Part of the Regulus which has been reduced to a *Diaphoretic* by the momentaneous Detonations; and from the Solution of the Salt, not one Particle of *Kermes* is precipitated. The whole Process is finished without any sensible Loss of the Regulus, if, instead of the fixed Nitre, we employ a purer alkaline Salt, such as that of Tartar: But the momentaneous Detonations prove, that in the common Process of the Regulus, the Regulus itself, however well purified it may have been by reiterated Fusions, still contains a considerable Portion of sulphureous Matter, more subtle indeed than the gross and inflammable Sulphur separated from it; but which is still sufficient to make the Nitre, which is not alcalized, fulminate; and, in all Probability, this sulphureous Principle is the Vehicle of the rigid Parts of the vitrifiable Earth, and assists them to stimulate and twitch the nervous System, and thereby produce Vomiting.

Having then shewn, that the alcalized Part of the fixed Nitre does not attack the Regulus during the Fusion, we have no Reason to be surpris'd, that the *Deliquium* of the same does not act upon this Regulus in the Ebullition, and that from a Pound of Regulus we can scarce separate and disengage one Grain of *Kermes*.

From all I have said, I conclude, that in order to procure *Kermes* by Fusion, we must employ a very pure fixed alkaline Salt; that the Proportion of that Salt is, one Part to two Parts of Antimony reduced to a fine Powder, that they may be the more intimately mixed; that the Mass drawn from the fused Mixture after it is reduced to a Powder, when hot, ought to be put into boiling Water, and remain in it for an Hour or two, before it is filtrated; that there ought to be boiling Water in the Bowl which receives this saline and antimonial Liquor, for the Reasons above-mentioned; that every Ounce of Antimony, thus treated, yields, after three Ebullitions of the Mass dissolved in Water, from five Drams sixty Grains to six Drams thirty Grains of *Kermes*, almost as beautiful as that which is yielded by Ebullition, according to the Process published by the

King's Order; that it is not nevertheless so smooth to the Touch, and that it wants that downy Softness, which is always the distinguishing Characteristic of that which is prepared simply by Ebullition: As to the Effects both of the one and the other, considered as a diaphoretic Medicine, I believe them perfectly alike.

I have said, in the Beginning of the first Part of this second Memoir, that from Antimony treated by Acids, we might have a Remedy, which, if exhibited in a small Dose, should produce the same Effects with the *Kermes*: As the Preparation of it is very easy, it might be substituted in its room, especially in the Hospitals. In this Case, Acids act upon this Mineral in the following manner:

I took for my Experiments *Hungarian* Antimony, split into Laminæ, according to the Direction of its Needles, that I might the better observe the several Phenomena that should occur.

Neither the white and concentrated Oil of Vitriol, nor that which has been weakened and diluted with common Water, act, when cold, either upon these Laminæ of Antimony, or upon the Pieces of Regulus; this Acid only darkened the Lustre of the shining little Surfaces of the Regulus. But if we put into a Retort half a Dram of the like pure Regulus, and pour upon it four Parts or two Drams of white and concentrated Oil of Vitriol, with the first Degree of Heat, the Oil of Vitriol will become brown, a suffocating sulphureous Smell will arise from it, which will augment in proportion as the Regulus is penetrated and corroded by the Acid; for there is no true and real Dissolution happens to it.

By augmenting the Fire, an apparently mucilaginous Matter is separated from it; and when the Oil has begun to boil, the Regulus is reduced into a white saline Mass, just as it happens to Mercury in the Process for Turbith Mineral; a true Sulphur is sublimed, or raised to the Neck of the Retort; and lastly, all the Oil of Vitriol passes into the Receiver, and leaves in the Retort the Regulus reduced to a white, tumefied, and saline Mass: The Fire being extinguished, I separated the Retort from its Receiver, and as soon as the external Air enter'd, there burst out a sulphureous Vapour as white and thick as the Steam of that Liquor, which is prepared with corrosive Sublimate and Tin.

The white and saline Mass remaining in the Retort weigh'd seventy Grains; so that it had augmented thirty-four Grains, which must have come from the vitriolic Acid which was concentrated in the Regulus; and the Oil of Vitriol, conveyed to the Receiver, had lost almost as much, and had, besides, become considerably less acid. This saline Mass to me appeared to be too much of a caustic Nature for internal Use.

I did not perform this Experiment with Antimony, because it is described in the Observations of *Frederic Hoffman*, and because I could say no more concerning it than he has there done.

The purest Spirit of Salt does not act sensibly either upon Antimony, or its Regulus; but it disengages, tho' slowly, from Antimony reduced to small Pieces, some light sulphureous Flakes.

The Case is not the same with the Acid of Nitre; it attacks by little and little these Laminæ of Antimony, and there arise from it a great many Bubbles of Air; the Spirit of Nitre, during this Fermentation, gradually assumes a greenish Colour with a faint Cast of Blue; and if more of this acid Spirit than is necessary is not put into the Vessel, it is almost wholly absorb'd by these Laminæ, which it penetrates, and separates from each other, according to the Direction of their Needles. If there is too much of this Acid, that is, if it swims above the Antimony, it destroys these Laminæ, and reduces them to a white Powder.

But if the Absorption of this Acid is slowly made, we discover among these distended Laminæ, little saline and transparent Crystals, which grow gradually in the same manner with the *Pyrites*, in which we often perceive little Crystals of Vitriol, which have not as yet assumed very determined Shapes and Figures. These little Crystals of the antimonial Laminæ are intermixed with the yellow Parts, which, being carefully disengaged, burn like common Sulphur.

I used all my Endeavours to separate a certain Quantity of these little Crystals, but my Attempts were in vain; for they disappear soon after they are formed, and are apparently cover'd with a white Powder or Magistery, which is successively form'd in proportion as the Acid of the Nitre disengages and separates the spiculated Particles of the Antimony. But though I cannot shew these little Crystals formed by the Union of the Spirit of Nitre with the Antimony, the Formation of that nitrous antimonial Salt is not for that Reason the less real. Besides, I find the like Appearances, when I substitute the Regulus instead of the Antimony itself. A good deal of Attention is nevertheless requisite to separate these Crystals; as soon as the Air acts upon them, they lose their Transparency; and if the Regulus is allow'd to reduce itself into a Magistery to a certain Degree, they are no longer distinguishable.



Thus, in order to observe these Crystals, it is necessary to break the Regulus into Pieces, to put these Pieces into a small glass Vessel, and pour Spirit of Nitre upon them, to the half of their Height only, that they may not be all covered by it. This Acid penetrates them, makes them exfoliate into white Scales; and it is upon the Surfaces of these Scales that these white unpolished Crystals are formed. These Crystals grow and increase, in the Form of Collyflowers, in the Space of two or three Days. It is then necessary to withdraw them, that they may not be confounded in the white Magistery, which is still forming itself, and which would prevent their being distinguished.

The Spirit of Salt, which alone does not appear to attack the Antimony, yet reduces it to a white Magistery, when Spirit of Nitre is added to it. But the Mixture of these two Acids with this Mineral produces no Appearance of Crystals. The Laminæ of the Antimony soon become yellow, and very foetid; nitrous Vapours rise from them, and yet the acid Liquor does not seem to retain a great many Parts of the Mineral; or, which amounts to the same, it very quickly precipitates what it had retain'd; after which, Oil of Tartar, poured upon it, no longer produces any Precipitation.

Thus 'tis not enough to say with some Chymists, that Aqua Regia is the Dissolvent of the reguline Part of the Antimony; we must add, that the Aqua Regia ought to be poured upon the Antimony and its Regulus in large Quantities. Besides, the Aqua Regia, which produces this Dissolution, ought to be composed of four Parts of the Spirit of Nitre, and one Part of the Spirit of Salt. The Spirit of Nitre, converted into Aqua Regia by Sal Ammoniac, does not dissolve without Precipitation, as this Aqua Regia does.

In two Ounces of an Aqua Regia, composed as I have now said, I dissolved a Dram of Regulus broken in small Pieces; and that the Dissolution might be made without a Precipitation, I was oblig'd to wait till one small Piece was totally dissolved, before I put in another. The Experiment takes up a great deal of Time; but 'tis reasonable to have recourse to all Means, in order to satisfy ourselves of a Fact which may be contested. 'Tis necessary I should also observe, that this Liquor, in proportion as it is impregnated with the Regulus, assumes a beautiful gold Colour, which it insensibly loses by the Evaporation of the white Vapours which are continually rising.

The same Aqua Regia, used with the same Precautions, also dissolves in Antimony the reguline Part, which is in the Pieces of this Mineral, when thrown into it one after another. The Dissolvent having carried off this reguline Part, the remaining Pieces of Antimony, becoming by that means lighter, swim above. If we take them off, and examine them, we shall see, that they are Part of the Sulphur which the Antimony contained.

Hitherto I have found nothing but this Aqua Regia, composed, as I have said, of four Parts of the Spirit of Nitre, and one Part of the Spirit of Salt, employ'd to the Weight of sixteen Drams upon one Dram of Regulus, and upon a somewhat less Weight of Antimony, which occasions a total or complete Dissolution of the Regulus; whereas the Spirit of Nitre, made with Sal Ammoniac, quits, and soon allows the small Quantity of Regulus it had dissolved, to precipitate, as the late Mr. Lemery has observed.

Mr. Lemery made many Experiments with this Magistery; and I am surpris'd the Use of it is not continued in Hospitals, and Country Places, where this Remedy, which costs little, and which is easily prepared, may be substituted in the room of a great many other antimonial Medicines, more difficult to be prepared. I have often observed, that the Precipitate of Antimony produced by the Spirit of Nitre, when well edulcorated by several Affusions of boiling Water, purges and vomits like the *Kermes*, when given in a Dose of three or four Grains. I have also observed that prepared by common Aqua Regia, when well washed, to operate by Stool, if given in the same Dose; and that a Grain of it, given for a Dose, operates as a Diaphoretic. Many poor Peoples Children, attack'd with Disorders, Obstructions and Fevers, have been first relieved, and afterwards thoroughly cured, by taking a Grain of this Medicine for a Dose. Besides, it may be swallowed with less Reluctance than any other Preparation which should be either unpalatable, or more bulky. *Memoires de l'Acad. Royale*, 1735.

#### Continuation of Mr. Geoffroy's Remarks on ANTIMONY.

In the Memoir which I read last Year upon the *Kermes*, I oblig'd myself to examine what might be the Quantity of common or inflammable Sulphur, which the different Antimonies, which we meet with in *Paris*, contain; and, at the same time, to determine the Quantity of pure Regulus, which might be expected from that Mineral by Operations attended with less Loss, than in the ordinary Methods.

Such an Inquiry is the Subject of this Memoir, and that you may know before-hand what I design to illustrate, my Business shall be,

1. To reduce Antimony to a Calx, as much desulphurated as

possible, in order to know, by the Diminution of the Weight, how much Sulphur is evaporated, I mean inflammable Sulphur.

2. To make it appear, that every Calx of Antimony, that is well exhausted of inflammable Sulphur, is scarce any more than a Regulus; and that what is not such is an Earth, which may be regarded as foreign to that Mineral, and a Remainder of Sordes, from which it was not thoroughly purg'd in the Furnace.

3. To propose a Method whereby we may obtain a much greater Quantity of Regulus from Antimony, of whatever Kind it be, than by the way of Process so celebrated by M. Stahl, and by those that have copy'd it from him. And,

4. lastly, To teach a way of purifying the Regulus, without an Addition of Salts, and with inconsiderable Loss.

All this supposes long Details, but then these Details will be accompany'd with Observations which will render them the more supportable. And tho' the Means which I use may not be proper for those who perform these sorts of Operations by the Great, and have nothing in View but to work quick, and to get Money by it, yet they who prefer Exactness before such Views, will, perhaps, thank me for my Labour.

We commonly meet with three Sorts of Antimony in this Place (*Paris*): One comes from the old Mine of *Auvergne*; this, as it was formerly worked, was so salt, and so little depurated, that it was used in nothing but gross Preparations, and it was almost impossible to make the diaphoretic Antimony of it. This grew out of Use, and the *Antimony of the new Manufacture* became in Repute, which, for Purity, may vie with the choicest *Hungarian* Antimony. If the Undertakers, who work that Mine, continue to furnish us with as good Antimony, as that upon which I have performed my Operations, and if the Mine be rich, we may be almost sure, that there will be no Occasion to get it from *Hungary*, which would be a considerable Advantage to the Kingdom. Those Authors who have written best upon Antimony, generally say, that this Mineral ought to yield about half its Weight in a Regulus; but it is possible to obtain a far greater Quantity. This I shall prove in the Course of this Memoir, by describing the different Methods which have been most successful in collecting the Reguline Part of Antimony into one single Mass.

While I was in the Course of my Essays on the Reduction of the various Preparations of Antimony, I discover'd by chance a new Phosphorus, being a Preparation of Antimony, which fulminates with a Noise and Explosion, as soon as it comes into Contact with the Air; this I try'd by repeating the Operation several times one after another, and always with the same Success. I believe the Invention is new, and I shall give it as such at the End of this Memoir.

According to the Order of operating, of which I have already given an Account, I begin with the calcining of Antimony. I have nothing to add with respect to the ordinary Method of Calcination, except that the finer this Mineral is pulverized, the better does the common Sulphur evaporate from it. The Reason of this is obvious: I always made use of it thus prepared: As I was to compare the Weight and Colour of the Calxes of different Antimonies, it was necessary for me to fix an equal Time to each Calcination of an equal Quantity of every one of those Antimonies.

I found by Experience, that ten Hours was the most convenient Time for the perfect Calcination of twelve Ounces of this Mineral pulverized. The Proportion of Fire was not so easy to be fixed; however, I came as near to it as possible, by using in every Calcination, the same Vessel, the same Furnace, and the same Quantity of Charcoal, and employing the same Operator, who always kept stirring the Powder of the Antimony, to prevent it from running into Lumps.

It may be proper to observe in this Place, that the Vapours of Antimony are not so dangerous as is generally imagined, and as they would really be, did Antimony contain an arsenical Sulphur, as most of the *German* Chymists pretend; for the Person whom I employ'd in this Work, perform'd above fifty Calcinations, almost continually one after another, without feeling the least Inconvenience, tho' the Chimney, under which the Furnace was placed, was none of the best for drawing of Smoke.

The different repeated Calcinations of *Hungarian* Antimony, of which I always took the Weight of twelve Ounces, being the Quantity which suited the Capacity of my Vessel, constantly reduced that Mineral to nine Ounces two Drams, and sometimes to nine Ounces three Drams.

The same Number of Calcinations of the old Antimony of *Auvergne* made greater Variations. I had Calxes which weigh'd ten Ounces wanting twelve Grains, some ten Ounces one Dram, others ten Ounces three Drams. I also bought this old Antimony, which I calcined, from different Shops. These Variations do not proceed from the Time of the Calcination, which was always the same, nor from the Degrees of Fire, as you may see by the Precautions which I always took to keep it nearly equal. I can impute them therefore to nothing but the greater or less Impurity of those different Antimonies purchased of different



ferent Druggists; for tho' they all came from the same Mine, 'tis plain they were smelted at different Places. By *Impurity* here, I mean, that Portion of Sordes which is more considerable in them than in those Antimonies which we call pure, and remains fixed in the Fire without diminishing its Weight; because, being a pure Earth, it contains no Matter for Evaporation.

The Calcinations of the Antimony of the new Mine, or new Manufacture, reduced the Calx to nine Ounces two Drams and an half, nine Ounces three Drams, and nine Ounces four Drams; so that I may with Reason affirm, that it was almost as pure as *Hungarian* Antimony. Besides, the Calx, when stripp'd of its Sulphur, is of a light-grey-ash Colour, like the Calx of *Hungarian* Antimony, whereas that of the old Antimony of *Auvergne* is of a much more brownish Colour: The Purity of the Antimonies we are now examining, is known from what I have now said, concerning the greater or less Loss they sustained during Calcination; the more it loses, the more it contains, *ceteris paribus*, of common Sulphur, which, as is sufficiently known, is an essential Ingredient in the Composition of this Mineral; and the less it loses, the more it contains of heterogeneous Parts, which do not yield to the Action of the Fire in Calcination; that is, its Fusion has been ill performed, or the Mine from which it has been taken, has been very poor. There is no Occasion for my enlarging further on this Observation. The thing required was to arrive at a Certainty, that these Calxes of Antimony were as thoroughly divested of Sulphur as they could possibly be; for this Purpose I calcined them with Nitre; their Detonation was more languid than that of the Regulus treated in the same manner, for the same Space of Time, by the same Fire, and with the same Salt. The Mass thrown into the Water yielded me a diaphoretic Mineral full as white as the Diaphoretic prepared with Regulus, and almost in the same Quantity, which Circumstance contributes in some measure to prove, that the Calx of a good and well prepared Antimony is all Regulus; and that, in order to make it so, nothing is wanting but to collect its divided Parts.

These same Calxes with corrosive Sublimate, in the Proportions ordinarily employed to make Butter of Antimony, are with Difficulty attack'd by the Acid of the Sublimate.

The Translation of this Acid from one Matter, so as to lodge it upon the other, is so difficultly performed, that only a very small Quantity of Butter of Antimony is distill'd: The Remainder of the Sublimate is sublim'd afresh. There arises neither Cinnabar nor Sulphur, because these Calxes are entirely divested of the latter of these. But why, may one say, does not the Sea-salt act upon this Calx? Why is not the Translation I have spoken of, made? I answer, that this happens, because in calcining the Antimony there is a Commencement of Vitriification, and because the greatest Quantity of the Particles of the Calx being covered with a Stratum of Glass, the Acid slips over them without finding any Pores at which it may enter; and if it has reduced any small Portion of it to Butter, 'tis because this small Portion has not been vitrified. This may also probably happen, because a Portion of the Acid of the Sulphur is concentrated in the Calx, in which Case the Acid of the Sea-salt could not attack it.

By the common Method of preparing Regulus, too well known to stand in need of a Description here, the late Mr. *Lemery* extracts six Ounces one Dram of it from each Pound of Antimony. Mr. *Stahl*, in his *Traacts*, says, that a fourth Part of it is only extracted when we use equal Parts of Tartar, Saltpetre, and Antimony; but that the Product of the Regulus is more considerable, if to six Ounces of Antimony we add five Ounces of Nitre, and six Ounces of Tartar. Then he subjoins his Discovery, which consists in separating or reducing the Antimonial Powder from the Scoriae, by casting them into the Crucible with half their Weight of Nitre, in order to make a gentle Detonation, and by throwing Powder of Charcoal upon them immediately after. We shall, continues he, by this second Operation, have another Regulus, which shall almost be equal in Weight to the Regulus first extracted from it. But he does not precisely determine the Weight of that first Regulus: Besides, this Process is difficult; there are two Detonations, and consequently some Loss. The Sulphur is so intimately united with the crude Antimony, that in these Detonations of the Nitre with the Tartar, especially in the first, a considerable Portion of the Antimony is carried off partly in Smoke, and Part of it entire, whilst the other Particles stripp'd of the Sulphur which they contained, by Detonation, collect themselves into a Regulus.

I myself went otherwise to work, and quitting my Supposition, that the Calx of Antimony is a Regulus divided into extremely fine Particles, my Business was only to find a Dissolvent or Reductive, which might at one and the same time restore to the Particles of the Calxes, too much stripp'd of the Phlogistic, that inflammable Principle in which they were defective, and reduce itself into a Flux, liquid enough for allowing these Particles to pass through it easily, and precipitate below it by their proper Weight; and that, being thus precipitated, the Reunion should be made by Fusion. I have tried

the reductive Salts, the Oils, the Fats; but nothing has succeeded so well with me as black Soap. This Reduction is also made by Charcoal; for nothing ought to be omitted, and Charcoal is even a Reductive employed in the Preparations of Regulus in great Quantities. As for the Oils and Fats, they reduce also; but they ferment too much, and inflame; and as they are reduced to a Coal, no fluid Scoriae are form'd; what floats above the Antimony in the fluid Part is rugged and coarse, and the fused Mineral being naked, the Evaporation of it is carried on with a considerable Loss.

Nitre too quickly carries off the Sulphur of the Antimony in Detonation: Besides, 'tis known, that it reduces it to a Diaphoretic; and we cannot afterwards reduce this Diaphoretic into a Regulus, without a great deal of Loss to the whole Mass of the Antimony, with which the Operation has been begun.

Salts already alcalized, when fused with the crude Antimony, reduce it into that Form which we call *Kermes by Fusion*, or *Golden Sulphur of Antimony*; if they are fused in equal Quantities with the Calx of the Mineral, they reduce it to a Species of Glass.

Red Tartar, or white Soap, may be employ'd; but I have found, that neither the one nor the other collected so much of the Regulus as black Soap. I gave an Account of the Essays of this Kind I have made, in order to avoid a superfluous Prolixity: I shall then confine myself to this Reductive. 'Tis well enough known, that it is composed of a strong and whitish Lixivium of Pot-ash and Quick-lime, united by Ebullition to Lin-seed Oil, Rape Oil, Hemp-seed Oil, and sometimes even to Fats. I am not indeed the first who used this Method; for I have seen in the *English* Edition of Sir *Kendal Digby's* Chymical Experiments, that this Philosopher recommended Soap and Tartar, for the Reduction of a Regulus of Antimony, which he calls *Spiritus*; and which, according to him, is the precipitated Butter of Antimony, and the Mercury probably reunited; for he says no more of it. Whatever the Case is, if it was a Reduction of the *Mercurius Vitæ*, which he was talking of, the Soap was sufficient without the Tartar.

But since black Soap is so good a Reductive of the Reguline Part of Antimony, it may be asked, why this Mineral is converted into a Calx in order to reduce it afterwards, and why the Powder of Antimony is not mixed all at once with the Soap, since by this means the Operation would be less tedious. As I was apprised before-hand of this Objection, I prepared myself to answer it by an Experiment, which proves, that crude Antimony does not yield, even with this Reductive, all the Regulus that may be separated from it by my Method. I took two Ounces of *Hungarian* Antimony, like to that which I had reduced to a Calx; when reduced to a fine Powder, I mixed it with two Ounces and an half of black Soap, and had a Mass of Regulus well reduced, and very clean, but it only weighed two Drams six Grains; so that two Ounces forty-eight Grains would be yielded by each Pound of Antimony. By the Process of Mr. *Stahl*, seven Ounces and an half, or at most, eight Ounces, can only be extracted; and by mine, I have very near ten Ounces, as may be seen afterwards. Thus the Soap, which well enough reduces the Calx of the Antimony, cannot in the least separate the Regulus of that Mineral when crude.

The Scoriae which float above this small Part of the collected Regulus, are, when cold, a sort of black compacted Glass, which resembles Jet, melts at the Flame of a wax Candle, like Bitumen, and diffuses a sulphureous Smell. These Scoriae, which do not become moist by being exposed to the Air, would have been of the Colour of Liver of Antimony, if the alcaline Salts, which are contain'd in the Soap, had only been employ'd. But in using the Soap, we see its oily Part must burn, unite itself to the Acid of the Sulphur of the Antimony, and with it form a Bitumen: The alcaline Salt is covered and wrapt up in it which so defends it, that the Action of the Air cannot dissolve it. What I have now said, is sufficient to prove, that there is more Advantage in reducing the Calx of Antimony into a Regulus, than in attempting the Reunion of the Reguline Parts in crude Antimony.

The Process of *Kunckel* is not more advantageous than that of Mr. *Stahl*. He takes a Pound of the Calx of Antimony, which he reduces into a Paste with Suet, or any other Fat, and Charcoal. He puts the Whole into a Crucible slightly covered, till nothing rises in Smoke; after which he gradually puts into it a Pound of Nitre; by this means we have seven Ounces three or four Grains of a very beautiful Regulus; but I draw a great deal more from it by the Soap. *Kunckel* joins to the Fats, which already form of themselves a slight Coal and Soot, another grosser Charcoal, which obliges him to add Nitre to it, in order to destroy these two different Charcoals by Fulmination. This Nitre melts, alcalizes, and becomes fluid. The Grains of the Regulus, already reduced by the oily Principle, easily precipitate through that Salt when in Fusion, which they could not have done through the Scoriae, which would have remained in an almost solid Mass, without the Addition of the Nitre; for every one knows, that the whole



whole Art of Reduction consists in reuniting into weighty Molecules the too much divided Particles of the Metals, and in keeping these weighty Molecules in a liquid Medium, thro' which they are capable of passing.

But the Nitre, becoming alkaline, has not, in fulminating, carried off all the fat Part of the Mixture; it becomes therefore *Liver*, with what remains of the Sulphur; and under this new Form, it converts into *Kermes* the smallest Parts of the Regulus, which it corrodes. If this same Salt prevails over the Sulphur, it reduces another Portion of the Regulus into a *Diaphoretic*. Thus two Substractions must be made from the Quantity of Regulus, which should have been collected at the Bottom of the Crucible, without taking into the Account what rises in Smoke during the Operation, which is sufficiently long, and during the Detonation.

We have formerly seen how much Calx, without Sulphur, twelve Ounces of the different Antimonies I calcined, yielded: 'Tis therefore unnecessary to repeat in this Place, what was said on that Occasion. I reduce this Calx with the Soap in the following manner:

I take two Ounces of every one of these Calxes, of which I form a somewhat liquid Paste, with an Ounce and an half or two Ounces of black Soap. I put this Mixture by little and little into a Crucible, which I make moderately red-hot in the Middle of burning Coals, in order to burn the Soap slowly, to give the Oils a greater Propensity to imbibe every Part of the Calx of the Antimony, and to avoid the Loss of the Reguline Particles, which, being then very much divided, would rise so much the sooner into Smoke, if the Fire should happen to be too hot at first.

When the whole Mixture is put, by little and little, into the Crucible, and when I perceive, that the Fat of the Soap is burnt, I cover the Crucible: Then I apply a very hot Fire, in order to put the whole Mixture in Fusion. It is, at first, heard to ferment or boil considerably; but at last that Noise ceases: Then I allow the Crucible to become cool in the Middle of the Coals; and find, upon taking off its Cover, congeal'd Scorizæ, with Circles of different Colours. The Middle of these Scorizæ is sometimes rough, having Cavities, in which we may discover white and saline Vegetations.

Then I break the Crucible, and find a Lump of Regulus well collected; which is not indeed, as yet, pure, but which must be purified, as I shall afterwards direct; and which, internally, appears to be an Assemblage or Collection of small shining Grains, as yet not sufficiently reunited, nor placed in a sufficiently compact Arrangement, for forming *Laminae*, or little Surfaces.

Two Ounces of the Calx of the Antimony of *Auvergne*, of the new Company, yielded me, in three repeated Fusions, always the same Weight: An Ounce five Drams and some Grains of the imperfect Regulus, I have just now mention'd.

Two Ounces of the Calx of the old Antimony of *Auvergne*, which I had lying by me useless since 1712. when melted also with two Ounces of black Soap, yielded only an Ounce and four Drams of Regulus.

Other Antimonies of the same Mine, bought at different Shops, yielded me an Ounce and five Drams, all but twelve Grains; but it was less pure than the former.

Lastly, the Calx of the *Hungarian* Antimony yielded an Ounce four Drams and forty-eight Grains of a purer Regulus than that I just now mentioned, having, on its Surface, Furrows in the Form of Fern; and, internally, some little Surfaces already well formed.

When I put these Lumps of Regulus, as well cleaned of the adherent Scorizæ as they possibly could be, into a *China* Bowl full of pure Water, I observed a very strong Ebullition, which, in some of the Lumps, lasted for twenty-four Hours: Being surpris'd at this, I discovered, with a magnifying Glass, that there were in the Regulus little Holes, imperceptible to the naked Eye. I endeavour'd to find out what might be the Cause of this strong Ebullition, and at last found, that it was a Portion of the Quick-lime, precipitated by its Weight with the Reguline Parts, which occasioned this Ebullition; because it had been calcined afresh with the Regulus, in a State of Fusion, at the Bottom of the Crucible. If it should be asked, whence this Earth, of the Nature of a Calx, proceeds; I answer, 'Tis from the Soap; for the acrid Lixivium, with which it is made, is compos'd, as I have said, of alkaline Salts and Quick-lime.

The above Reductions, being made in larger Quantities, yielded Products, in proportion, differing very little; so that I can say, that one Pound of *Hungarian* Antimony, reduced, by Calcination, to twelve Ounces three Drams and twenty-four Grains of Calx, furnished me with nine Ounces six Drams and fifty-four Grains of Regulus, which Quantity is not much short of ten Ounces; that the Fire carried off from that Mineral, when crude, during Calcination, three Ounces four Drams and forty-eight Grains of inflammable Sulphur; that the twelve Ounces three Drams and twenty-four Grains of Calx ought to be looked upon as a Regulus, mixed with a Portion of Earth; and that, without this superfluous Earth, all the Calx would be

converted into a Regulus, with a little oily or inflammable Principle. This Supposition, however, cannot amount to a Certainty, except we could be sure of the Quantity of the Regulus evaporated during the Fusion, which to me appears impossible; but it is of no great Importance, whether what is wanting of the Weight of the reduced Regulus, compared with the Weight of the Calx of the Antimony, was an Earth reduced to Scorizæ by the Salts of the Soap, or was evaporated: It will, however, follow, from my Experiments, that by the Method of calcining Antimony into a Calx, and reducing this Calx into a Regulus by Soap, I extract more Regulus than by the Methods of *Stahl* and *Kunckel*.

I now come to consider how this Regulus may be purified without Loss: For this Purpose I use a Method, which, I believe, is entirely new; at least, I know of no Author who has made mention of it. I take the Regulus, well clean'd of the Scorizæ: I reduce it to a Powder, and mix it with half its Weight of the Calx of Antimony, as well purified from the Sulphur as that of which I made that Regulus. I fuse them together, in a cover'd Crucible, till the Scorizæ, which ought to float above the Regulus, are in a smooth and even Flux. The Result of this is, that a Lump of Regulus, weighing, when impure, one Ounce five Drams and some Grains, and which was procur'd from two Ounces of the Calx of Antimony of the new Manufacture, was reduced to one Ounce three Drams and sixty-two Grains of pure Regulus; that is, with  $\frac{7}{8}$  of Loss. The Calx reduced to Scorizæ, and which covered the Regulus, became an opaque Glass, a Sort of *Enamel* of a greyish Colour, lying in the fine Furrows of the Surface of the Regulus.

Another Lump of Regulus, yielded by the Antimony of the old Manufacture of *Auvergne*, weighing, when impure, one Ounce four Drams, purified in the same manner, was reduced to one Ounce two Drams and forty-eight Grains; that is, with  $\frac{1}{2}$  of Loss. The Scorizæ were reduced to a black Enamel.

The Lump of impure Regulus, yielded by the Calx of the common Antimony of *Auvergne*, bought at different Shops, weighing, when impure, one Ounce five Drams, was reduced to one Ounce four Drams eighteen Grains; that is, with  $\frac{1}{4}$  of Loss. The Scorizæ were less black than in the former Case.

Lastly, the impure Regulus of *Hungarian* Antimony, which weighed one Ounce four Drams and forty-eight Grains, was reduced into a pure and starry Regulus, weighing one Ounce four Drams and fifteen Grains, in which Case there were thirty-three Grains, or  $\frac{1}{6}$  of Loss. The Scorizæ were a rough Enamel of a grey-ash Colour, a little inclined to the Yellow, and pretty like the Scorizæ of the purified Regulus of the Antimony of the new Manufacture of *Auvergne*.

These Scorizæ, which I call Enamel, were blacken'd by the impure Matter, which they carry off from the Regulus during the Fusion: When they are opaque, and of a greyish Colour, it is a Sign, that they have not found enough of sulphureous Matter to convert them into transparent Glass; for 'tis known, that a Calx of Antimony, that has been deprived of all its Sulphur, vitrifies very difficultly without some Addition: That, for this Purpose, a Fire of the most violent Heat is requisite; and that 'tis necessary to add a little crude Antimony, or common Sulphur, if we are inclin'd to have a Glass of Antimony that is transparent, and of a fine Colour. I have lately found this Observation to hold good upon the Calx of *Hungarian* Antimony, which I could never transform into Glass without the Addition of a little Portion of Antimony. For this Reason, when I purify my first Regulus, I make use of a Calx of Antimony, very well freed from Sulphur; because I only stand in need of a Substance, which, without vitrifying entirely, might become impregnated with the impure Substances which prevented the Reunion of the Reguline Parts of the first Calx, reduced by the Assistance of the oily Matter of the Soap.

'Tis true, I may also purify that first granulated Regulus, by melting it alone, and without the Addition of the Calx; but its Surface, in that Case, is never clean; it is always sullied by Scorizæ, which adhere very strongly to it, and no Stars are form'd in it. Besides, it must be a long time kept in a very liquid Flux, that the drossy Matter, which hindered the Reunion of the truly Reguline Parts, may have sufficient time to gain the Surface, in Consequence of their Lightness: Now the longer it is kept in Fusion, the more it loses; so that this is not the most expeditious Way of purifying it.

But the Addition of the Calx makes a Difficulty arise. I shall, undoubtedly, be told, that what blacken'd these Scorizæ can be nothing but the fuliginous Matter of the Oil contained in the Soap; or that Oil reduced to a Coal, which before stain'd the internal Part of the Lump of my first Regulus, and hinder'd the Reunion of the Reguline Parts, as I said above; that as I myself admit the Presence of an actual Matter, which really contains an inflammable Principle, it necessarily follows, that a Portion of the Calx, which I only take to be productive of Scorizæ, ought to be reduced to a Regulus by that inflammable Principle; and augment, so much the more, the Weight of the Regulus, which I put a second time in Fusion with this Calx; and that thus, tho' I there find a Diminution of some Grains,



Grains, yet nothing is thereby proved, because the Diminution would have been greater, if I had not added to it a Calx, a Portion of which might be reduced into a Regulus. I have not sunk any Part of the Force of this Objection, which has been, and may still be made.

I shall answer it, by giving an Account of two or three Experiments. In the room of Calx of Antimony I substituted factitious Crystal, reduced to Powder; and, in another Essay, alkaline Salt. In the first Essay made with the Crystal, the impure Regulus, which weighed two Ounces two Drams and thirty-six Grains, was reduced to two Ounces two Drams and six Grains, that is, with thirty Grains of Loss. In the second Essay, made by Salt of Tartar, the same Weight of impure Regulus was reduced to two Ounces one Dram and sixty-six Grains; that is, with forty-two Grains of Loss. If I perform the same Operation by mixing the Calx of Antimony with the Regulus, in the same Proportion, in order to purify it, I have forty-nine Grains of Loss; that is, the same Weight of Regulus, consisting of two Ounces two Drams and thirty-six Grains, is reduced, pure, to two Ounces one Dram and fifty-nine Grains. Thus, if with the alkaline Salts, which always corrode some of the Reguline Particles, I had only forty-nine Grains of Loss; if, with the Calx of Antimony, I lost fifty-nine, this is a Proof, that the Calx only acts in this Purification like a Flux-powder, which reduces the Impurities of the first Regulus into Scoriæ; and that it does not supply it with any Addition of Reguline Parts.

If, nevertheless, any one should obstinately deny it to be productive of Scoriæ only, this Denial could not possibly destroy the Usefulness of the Operation; and the End I aim at, is to draw from Antimony the greatest Quantity of Regulus possible. I have shewn, that, in order to obtain this End, it must be reduced to a Calx. It is a Matter of no Moment after what manner I regulised this Calx: If a Part of that which I put upon the Regulus, to purify it, is converted into a Regulus, the Affair is so far completed; the Remainder is reduced to Scoriæ, which I easily melt into a Regulus with the black Soap.

Whatever Precautions the Chymist takes, there is always a considerable Loss of the Reguline Portion of the Antimony: That Mineral, whose volatile Nature is demonstrated by so many Experiments, ought to be fused with Care and Attention, if we design to lose little of it. If, in my Essays, I had made the Reduction of my Calx into a Regulus, and the Purification of that Regulus, with one and the same Fire, I should have lost much more of it. I therefore perform the Operations by two different Fires; and as soon as I perceive, by the Fluidity of the Scoriæ, that the Reduction is about to be made, I take the Crucible from the Middle of the Coals, that the Fumes of the Regulus may cease.

Besides, I have observed, that by holding it for some time in the Fire, after the Calx is reduced to Scoriæ, this Enamel corroded the Sides of the Crucible, so as to pierce them.

I shall put an End to this Part of the Memoir by repeating what I said above; which is, that the best Means I have hitherto known, of extracting the greatest possible Quantity of Regulus from Antimony, is to calcine it till its Calx, when put upon live Coals, affords no longer any sulphureous Smell; to reduce this Calx into a Regulus, by uniting it with a Reductive, which may, at once, furnish a fat Matter, and yield liquid Scoriæ, such as black Soap; and to purify that Regulus with the same Calx of Antimony. By this Method I extract two Ounces of Regulus from each Pound of Antimony, more than *Kunkel* and the late *Mr. Stahl* have extracted by their Processes: And I shew, at the same time, that there is not, in this Mineral, such a large Quantity of inflammable Sulphur as is generally thought, and as I myself believed there was, when I publicly read my former Memoirs upon the *Kermes*; since, in calcining it with Attention, no more than three Ounces and five Drams, at most, are burnt or evaporated. If the Mineral, of which I am speaking, was more fixed when subjected to the Fire than it really is, I should have come nearer to the Exactness of Proportions; but as the greatest Chymists have not been able to check its Volatility, I hope Impossibilities will not be required at my Hands.

I now proceed to some other Observations, which to me appear independent of the Operation, and which I have reserv'd for the End of this Memoir, that I might not interrupt the Order I propos'd to myself.

I have shewn, that by reducing the Calx of Antimony by black Soap, I obtain'd a Regulus, which I call'd *impure*, because it was not compact. If a Quantity of this Regulus, of a moderate Size, is look'd into, it is found full of Cavities; and in the largest, by the Assistance of a magnifying Glass, we perceive Laminæ of Regulus, full form'd, which the Air, shut up and rarefied in these Cavities, has hinder'd from embracing each other: Some of these Laminæ are triangular, but the greatest Number of them are *hexagones*. Lastly, some of them are considerably long, which, joining themselves in right Angles by one of their Sides, form a kind of small Canals; some Needles are also observed in them, but very few. As to the external Surfaces of these Quantities of Regulus, we observe nothing

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remarkable in them, except some Furrows diverging, as it were, from a common Centre, and forming a Species of Rays. The unpurify'd Part of these Masses of Regulus, which appears the most compact, are possibly no more than the same Laminæ fasten'd to each other, and which discover themselves by their sharp Edges, and by the Summits of their Angles. Whether these Laminæ are the original and constituent Particles which ought to compose the Regulus, or whether they are only the Result of an accidental Arrangement of Particles, previously smaller, are Points which I will not take upon me to determine.

In Regulising the Calx of Antimony by black Soap, I have twice or thrice had saline Vegetations, in the Form of small Trees, rais'd considerably above the Surface of the Scoriæ: These were undoubtedly occasioned by the sudden Refrigeration of the Matter in Fusion. I shew'd one of these Vegetations to the Academy, that they might be sure, that it corresponded exactly to the Representation given of it. But I cannot lay down certain Rules for producing such Vegetations at Pleasure; for whatever Pains I could take, I could not afterwards succeed in procuring others.

All these Reductions of the Calx of Antimony into Regulus are not made without the Rising of a sensible Quantity of silver Flowers, which are ordinarily call'd the Flowers of Regulus: These are long, slender, and rigid Filaments, as pungent as very fine Needles. If they are view'd thro' a Microscope with a single Lens, but furnished with its Corrector, they appear opaque; but when the Corrector is removed, and they are exposed to the clearest Light possible, they appear to be diaphanous Filaments of Glass: Yet this Observation does not absolutely prove; that they are really Glass; since most Objects, view'd thro' a fine Lens, appear transparent, provided they are considerably small. *Newton* has observed, that by placing a very small opaque Body before the Hole thro' which the Light enters into a darken'd Chamber, that same Body appears to be transparent. The Microscope, in this Case, produces almost the same Effect with the darken'd Chamber; so that what I take to be Glass, may only to me appear so thro' an Error of Vision.

I also succeeded in reducing the Glass of Antimony by Soap; by treating it in the same manner with the Calx; but as this might be expected, I wave giving any farther Account of it. I imagin'd I might have, in like manner, succeeded with the *Diaphoretic*, excepting some small Difference which would have regard'd the Weight: But the *Diaphoretic Antimony*, prepared in the common Way, being mixed with black Soap, and then forced by the Fire, like the Calx of that Mineral, was converted into a Mass, which I allowed to cool, hoping to find a Regulus at the Bottom of the Crucible when I should break it. Having examined it when almost cold, in a Place expos'd to the open Air, I perceived, that the Mass became hot in proportion as it absorbed the Humidity of the Air. I applied some Pieces of it to the Flame of a wax Candle, upon which they kindled and crackled: Upon throwing back some of these kindled Pieces into the Crucible, they kindled the rest of the Mass, which also burnt and crackled.

I repeated this Operation, and made use of a very beautiful *Diaphoretic Mineral*, which I had prepared, some Days before, of two Parts of Regulus and three Parts of Nitre. I mix'd an Ounce of it with two Ounces of black Soap: This Mixture, when put by little and little into the hot Crucible, kindled and was very much puff'd up: When the Flame was over, the Mass subsided, and assum'd a reddish Colour, like that of a live Coal; whilst luminous Vapours, of a bluish Green, arose from it. All these Circumstances happen'd, without Variation, upon every Projection of the Matter. When all the Mixture was projected, and ceased to send up Flames, and luminous Vapours, there was a Sort of reverber'd Mushroom form'd, which was hollow, porous, and black. I crush'd the Edges of it, and added a fresh Ounce of black Soap, that I might the better cover the Matter I intended to reduce. When this last Soap was burned; and I perceived a small bluish Flame on the Surface of the Mass, I covered the Crucible with its Lid, and a great deal of Charcoal; after which I produced a strong Heat, by about an hundred Puffs of the Bellows: But notwithstanding the Violence of the Fire, which was both stronger, and longer continued, than in all the Operations I have hitherto mentioned, there were no fluid Scoriæ form'd, and the Mass remain'd spongy. I allowed the Fire to go out, and carried the Crucible to a Corner of my Laboratory, where it remained for five Hours without being touch'd. Towards Night I was inclin'd to examine this Matter: Accordingly the Person who held the Crucible, which was quite cold, not guarding against an Effect, which indeed could not be foreseen, uncovered the Top of the Mass with a Piece of Iron; but as soon as the Air had Access to it, it took Fire, and there was a sudden Explosion made, with a Noise, which threw a very considerable Quantity of Fire upon his Cloaths, and burnt several Holes in them: There was a strong Smell of Sulphur diffus'd, resembling that of those Phosphori in Powder, of which the late *Mr. Lemery* the Younger has given several Descriptions in his Memoir of 1714. See ALUMEN.



## A N T

I did not obtain the Reduction of the Diaphoretic I wanted, but Chance afforded me a very singular Phosphorus, which I did not seek after. I repeated the same Experiment since, with the same Success, whether I used the common *Diaphoretic*, or my own *Diaphoretic of Regulus*: 'Tis true, the latter succeeded better than the former, provided neither too strong nor too weak a Fire was applied, after the Addition of the last Ounce of Soap.

When, in order to make my *Diaphoretic*, I detonate the Regulus with pure Nitre, I wash it generally, in order to separate from it the Nitre alcalized during the Deflagration. Its Lixivium, which is of a very caustic Nature, assumes a bluish Colour; which probably proceeds from a Portion of the inflammable Principle, which that Salt has carried off from the Regulus: And as a Proof of this, that Lixivium blackens Tin and Silver, which it would not do, if it was not sulphureous. If instead of throwing this Matter into Water, after the Detonation, I throw it into Spirit of Wine, it assumes, almost immediately, a beautiful red Colour, which, by Digestion, is still heighten'd more and more. This Liquor, which *Stahl* has called *Tinctura Alcalica acris*, is a Tincture of Antimony, not of an emetic Quality, but only simply alkaline and diaphoretic, which, by means of the Nitre, has carried off from the Antimony a Portion of its Metallic Sulphur; if, by the way, a Metallic Sulphur has an Existence in Nature; from whence it follows, that a well prepared *Lilium* is not simply a Tincture of alkaline Salts, as some People imagine. It is true, that Spirit of Wine, digested upon a simple fixed Salt, well alcaliz'd, assumes at last a reddish Colour; but that same alkaline Salt, when it is pure and unmixed, will never give a bluish Colour to Water, as Nitre alcalized with Regulus does.

This Digression is not so unseasonable as at first Sight it may possibly appear to be; for it serves to prove, that there is a considerable Quantity of an inflammable Principle in the Regulus. Besides 'tis well enough known, that by converting the Regulus into a *Diaphoretic*, its Weight is considerably increased. Eight Ounces of Regulus, for Instance, yielded me eleven Ounces and two Drums of *Diaphoretic*, even when well edulcorated, and sufficiently dried. This Augmentation can proceed from nothing else than the Concentration of the Acid of the Nitre in the Parts of the Regulus: Now, upon this Supposition, I can discover the Cause of the Deflagration of my Phosphorus.

I account for it in this manner: There is a great Quantity of the Parts of the Calx, which was formerly Quick-lime, in that gross and unfiltered Lixivium, of which the black Soap is made: When I calcine the Mixture, of which my Phosphorus is made, I burn some Part of the inflammable Matter of the Soap, and the remaining Part is reduced to a Coal. During the Action of the Fire, the Acid of the Nitre, by little and little, quits the Reguline Parts which retained it, in order to unite itself to the alkaline Salt of the Soap, with which it is formed into a regenerated Nitre: But all the alkaline Salt is not employ'd in this Regeneration; because there is not, in all Probability, enough of the nitrous Acid. By the same Fire the earthy Particles of the Calx, scattered up and down in the Soap, are calcined afresh, and once more become a *Calx Viva*. As all these Particles of different Natures are contiguous to each other in the Crucible, they will, by their Actions, contribute to produce the Effect we speak of, as soon as an external Cause shall concur to its actual Production. Taking this for granted, I raise the Crust which covers the Mass of Phosphorus, upon which the Moisture of the Air, or those aqueous Particles with which it is impregnated, and which are greedily absorbed by the alkaline Salts contained in the Mixture, are introduced. Upon this the Calx becomes moist, grows warm, kindles, and lays hold of the Parts of the Charcoal, and regenerated Nitre, which are contiguous to it; and hence follows the Detonation of the whole Mass. That Nitre is actually contained in this Mixture, whether by Regeneration, which I believe to be the Case, or by some other Means, is proved from this Circumstance, that upon trying the same Experiment three times, with *Powder of Algaroth*, it did not succeed; because, in that Powder, the Antimonial Parts are not united to the nitrous Acid, but to the Acid of the Sea-salt.

If this is not looked upon as a sufficient Proof, I shall here subjoin an additional one. When, with an Intention to reduce the *Diaphoretic* into a *Regulus*, I continued to augment the Fire, there happened a Detonation of that Nitre, which was fused with the Coal of the Oil of the Soap, like that which would have been produced by a Mixture of Nitre and common Charcoal: The *Diaphoretic*, in the mean time, was dissipated in white Vapours; and there only remained in the Crucible a black hard Crust, which adher'd to its Sides, without any Marks of Detonation. For this Reason, the Success of my fulminating Phosphorus depends upon the Degree of Calcination which I give to the Mixture; for this Reason we must also take care, not to carry the Fire to such a Height as to fuse the Nitre.

As to the Probability of the Concurrence of a Matter,

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which is become a *Calx Viva*, and which kindles and burns, I shall relate the following Fact: About five Years ago, upon the breaking of the Ice on the River *Seine*, a Boat full of Lime was staved by the Ice; upon which the Water, getting Access to the Lime, kindled it. The Lime burnt the Boat, and the Fire was convey'd from that to the Boats that were next it, so that a considerable Fire ensued; and my Situation at that time gave me an Opportunity of being satisfied, as to the Truth of its Origin.

We have several Chymical Mixtures, which take Fire as soon as they are exposed to the Air; such as sulphureous, vegetable, and animal Substances, calcined with Alum.

The Mixture of Regulus of Antimony, and corrosive Sublimate, sometimes takes Fire.

Mr. *Stahl's* Antimonial Crocus of Mars took Fire in the King's Garden, where Mr. *Boulduc* exposed it to the Sun, in order to dry it with the greater Expedition.

*Aurum Fulminans* fulminates by the Heat produced by a somewhat rapid Trituration.

The Rod of Iron, used in stirring the several Mixtures in the Reductions of my Calces of Antimony, being scraped with a Knife, yielded Sparkles of Fire.

Mr. *Reaumur* observed, that from an almost equal Mixture of Antimony and Iron, a Metallic Mass is produced, which, when filed down pretty strongly, yielded a great many Sparkles of Fire capable of kindling any combustible Substance.

Thus it seems, in order to prepare Phosphorus, nothing more is required than to concentrate a Matter, capable of taking Fire, in certain *Cellulæ*, where it may remain calm and dormant, till, by some Cause or other, the Sides of these *Cellulæ* are broken, and Access given to a more subtle Matter, capable of communicating an extremely rapid Motion to it. Whether this Theory sufficiently accounts for the Inflammability of Phosphori, or whether more ingenious Hypotheses are invented for that Purpose; yet still it must be owned, that Speculations of this Nature are more curious than useful. *Memoires de l'Academie Royale*, A. 1736.

Of the REGULUS ANTIMONII MEDICINALIS, from Hoffman.

The Regulus of Antimony has not been exempted from the Fate of other chymical Medicines; for upon its appearing some Years ago, it was at first looked upon as an *Arcanum*, or Secret of the last Importance, especially in the *Netherlands*. Who its Inventor might have been, is a Point as yet not fully agreed upon; for some ascribe the Discovery to *Cranius*, and others to *Martius*, who has inserted the Preparation of this *Regulus* in his *Chymia Rationalis*: It is also to be met with in the *Med. Chym.* of *Vigani*. As Mankind are not agreed, with regard to the Inventor of this Medicine, so they also run into opposite Sentiments, with regard to its Qualities and Effects; for there at first were, and still are, a great many who rank it among the principal and most important Secrets of Physic; whereas others assert, that it is of no Use at all, or, which is worse, ascribe a noxious and poisonous Quality to it.

For these Reasons, I thought it would be no unuseful Task, briefly to inquire into the Nature of this Medicine, that we may be the better able to judge, which of these two Classes of Men, who run into so opposite Extremes, are in the Right, and which in the Wrong; and as no profess'd Attempt of this Kind has been made before, I hope I shall the more readily meet with a favourable Indulgence, if I handle the Subject with less Accuracy than its Importance deserves. Now, that I may execute my Design with the greater Perspicuity, I shall first briefly touch upon the Principles of which this Regulus is made up; secondly, I shall give its Preparation; and, lastly, its various Uses.

The constituent Principles, then, of this *Regulus*, are, first, Antimony itself, which is indeed the principal, since it constitutes the very Matter of the *Regulus*. Secondly, common Salt, whose Acid is very fine, and of a highly volatile Nature. Thirdly, and lastly, an alkaline Salt, which produces very singular and remarkable Effects upon sulphureous Substances, especially of a Mineral Nature; as also upon the sulphureous or oily Parts of animal and vegetable Substances.

Of the Preparation of the MEDICINAL REGULUS.

Having thus enumerated the several Principles of which the *Regulus* is composed, it now remains, that we take a View of the Method of preparing it. But tho' several Authors, and among the rest *Martius*, in his *Chymia Rationalis*, & *Det. Curios.* *Leyd.* *Koenig* in his *Regnum Minerale*, *Barkbyisen* in his *Pyrotophia*, have laid down Directions with regard to this Particular; yet I think myself obliged, in like manner, to give an Account of it.

Take then five Parts of pure Antimony, four Parts of common Salt, and one Part of Salt of Tartar. Some, indeed, alter the Proportions of the Ingredients, and take eight Parts of Antimony, seven of common Salt, and one of Salt



Salt of Tartar; but the former Proportions are most generally adher'd to. These Ingredients, when beat and mix'd together, are to be successively put into a red-hot Crucible: Let the Action of the Fire be rais'd to such a Height, that the Matter may be sufficiently and thoroughly fus'd; that is, let the Fire applied be a *moderate fusory one*. Then after the Matter is sufficiently fus'd, which generally happens in a Quarter of an Hour, if right Measures are taken, let it be pour'd into a Vessel of a conical Form, besmear'd with Tallow, or smoak'd with a Candle: This Vessel is to be shaken in the manner observed in other Fusions of *Regulus*, that by this means the *Regulus* may be sufficiently separated from the Scoriae, and carried to the Bottom of the Vessel: Some reckon this Circumstance of shaking so much the more necessary, because as this *Regulus* is lighter than any others prepared from Antimony, it must of Consequence be separated from the Scoriae, and fall to the Bottom with more Difficulty. Thus, if such a Concussion, or Shaking, should be neglected, and the Mixture pour'd when boiling, as it were, from the red-hot Crucible into a cold conical Vessel, it frequently happens, that during the Continuation of the Ebullition, a Portion of the Scoriae is intermixed with the *Regulus*; and, *vice versa*, a Portion of the *Regulus* remains in the Scoriae; so that, by this Oversight, we do not obtain it so pure and uncontaminated, or at least so beautiful and shining, as it would otherwise be. The *Regulus*, when separated from the Scoriae, resembles polished Steel or Iron; but if either in a Mortar, or upon a Marble, with or without the Addition of Water, it is reduced to a Powder so fine, that the shining Particles entirely disappear, it assumes a reddish, or rather a purple Colour.

But since there is no great Difficulty in the Whole of the Process, I shall not, at present, spend more Time in enumerating or describing any more of its Steps: But 'tis to be observed, with regard to the Addition of the alkaline Salt, that some who maintain, that there is a vast Difference betwixt Alcalis, adhere so inviolably to Salt of Tartar, either for the sake of its superior Purity, or on account of its nobler Effects, or occult Qualities, that they will not allow any other Salt to be substituted in its room. I have some Reason to think, that the Observation of *Vigani* may have laid a Foundation for the Doubts of People, with regard to this Matter; since, in *Med. Chym. p. 20.* he brings an Experiment for establishing the Difference of Alcalis; and affirms, that he himself, by preparing *Antimony* with common Salt and Salt of Tartar, obtained a reddish *Regulus*; whereas by a like Fusion of *Antimony* with Salt of *Carduus Benedictus*, instead of Salt of Tartar, a simple *Regulus* was only yielded. But I must own, that tho' I have with this very View made several Experiments, and that with a great deal of Caution, yet I could never observe so considerable a Difference between the *Reguluses* produced, but obtained the same, with Salt of *Carduus Benedictus*, and other Alcalis, as that procur'd in the common way by means of Salt of Tartar. I therefore suspect, that this simple *Regulus* of *Vigani* was produced by a fortuitous Intermixture of Charcoal, and some other sulphureous Concretion. As I have not therefore been able either *à priori*, or *à posteriori*, to discover the Difference of alkaline Salts, so I think we have no Occasion to be over-scrupulous in our Choice, provided we only make use of an Alkali that is pure, duly prepared, and not adulterated by any adventitious or heterogeneous Substance.

It is still more superfluous to hesitate about our Choice of common Salt, or make nice Disquisitions, whether Sea-salt, Sal Gemmae, or Fountain-salt, are most proper for this Purpose, since the End seems to be equally well obtain'd by all of them.

This then is the most common and usual Method of preparing the *Medicinal Regulus*; but it is not always adher'd to by some, who either add or omit Ingredients, or alter the Proportions of the Weights, just as Caprice, or some particular View, directs them. Thus some omit the alkaline Salt, and substitute in its Place crude Tartar, but in a larger Quantity. They therefore take eight Parts of *Antimony*, seven Parts of common Salt, and six Parts of Tartar. This Mixture is put into a red-hot Crucible for Fusion, which indeed is more difficultly brought about, than in preparing the common *Medicinal Regulus*. By this Method a *Regulus* resembling the medicinal one is yielded, and I take it to be of the same Species, tho' it is not so beautiful, being of a darker Colour, and of a more porous Texture: But when reduced to a Powder, it assumes a purple Colour, just as the *Medicinal Regulus* does. Its Scoriae are light, porous, and resemble the Flakes which fly from hot Iron when hammer'd. Others, who in the Production of *Regulus* perhaps ascribe too much to common Salt, order the Salt of Tartar to be entirely omitted, and the common Salt to be augmented by the Addition of a Quantity equal to the omitted Salt of Tartar. This is ordered by *Barkhysen in Pyro sophia, Libro 3. Sectione 3. Capite 2.* where he maintains, that the same *Medi-*

*cial Regulus* may be obtained from *Antimony* slightly fus'd with an equal Portion of common Salt; but upon Trial, the Effect promis'd is so far from being produced, that there is not so much as a perceptible Change induc'd upon the *Antimony*, by means of the common Salt. Lastly, among the several Methods of preparing *Reguluses* of this Kind, we may reckon that, in which, for correcting the *Crocus Metallorum* of *Rulandus*, Chymists add common Salt, and thence promise a like *Medicinal Regulus* as to its Effects. For this Purpose, they therefore order three Parts of Antimony, two Parts of Nitre, and one Part of common Salt: See *Le Mort in Actis Curiosis Leidenf.* Others reject this Proportion, and prefer equal Quantities of each Ingredient. Now these Ingredients, when beat and mixed together, are to be put into a red-hot Crucible, and reduc'd to a due Degree of Fusion, which is soon obtain'd. After this, the Matter is to be pour'd into a conical Vessel, or as *Le Mort* intimates, in the above-cited Passage, it may be left in the Crucible, from which, when cold, it is to be taken. The *Regulus* yielded by this Process, is not unlike the *Crocus* of *Rulandus*; it is, like the *Medicinal Regulus*, of a porous Consistence, not very smooth, but clean and beautiful. When reduced to Powder, it acquires a dark-reddish Colour like that of red Bole. Its Scoriae are light, of a yellowish-amber Colour, and not unlike those obtain'd by the Depuration of *Regulus* of *Antimony* with Nitre.

#### Of the Use of this REGULUS.

The Medicinal *Regulus* may be apply'd, first, to a chymico-physical, secondly, to a pharmaceutic, and, thirdly, to a medico-therapeutic Use, upon each of which I shall briefly touch.

Its Use then in Chymistry may be plainly perceived, from an Aetiological Research into its Nature, and the Manner of its Production; so that I shall say no more upon this Point, but proceed to take a View of its Use in Pharmacy.

And tho' Chymists have not hitherto been solicitous about extracting other Medicines from this *Regulus*, yet I shall briefly enumerate such Preparations of it as are in Use. Our learned President then, in his Notes to *Potterius, Cap. 12.* has propos'd a Preparation of antimonial Sulphur from the *Medicinal Regulus* boiled in Lime-water, and which is to be precipitated with Spirit of Vitriol. This Sulphur, he says, is of the same Efficacy and Virtues with the *Panacea* of *Glauber*; he also prefers it to the *Regulus* itself, because, as he says, in it the arsenical Virulence, being corrected by the Spirit of Vitriol, is weaker than in the *Regulus*. In the same Work he also gives Directions for the Preparation of an antimonial Tincture, to be extracted from the *Medicinal Regulus*, fus'd with an Alkali, by means of Spirit of Wine, either tartariz'd, or drawn off from antimonial Scoriae. He also teaches us how to prepare an anodyne Tincture from the *Regulus*, which is done by dissolving Opium in a Decoction of the *Medicinal Regulus* with Lime-water, and by extracting the Essence from the inspissated Solution by means of *Malmsey-wine*, or Spirit of Wine. Concerning the Virtues of this Tincture he speaks thus: "This Medicine is exquisitely calculated for easing Pains, and procuring Sleep; for by the Lixivium of the Quick-lime impregnated with the antimonial Sulphur, the narcotic and stupifying Qualities of the Opium are corrected, and thus the Symptoms usually brought on by the Use of Opium are prevented, whilst, in the mean time, the attenuating and anodyne Qualities of the antimonial Sulphur, which check the impetuous Motions of the Spirits, prove a happy Balance for each other." Here we may also take Notice of what is said by *Basil Valentine*, in his *Currus Triumphalis ANTIMONII*, concerning an antimonial Tincture and Balsam, which are prepared from a Mixture of Tartar and *Antimony*, in Form of a Liver, not unlike the *Medicinal Regulus*. Besides, an antimonial Calx, and a Ceruss of *Antimony*, may be easily prepared from the *Medicinal Regulus*; a Glass may also be prepared from it, if after washing out the alkaline Portion, it is gently calcin'd, and the Sulphur by that means carried off, upon which the calcareous Remains are easily fus'd into a Glass. Let this suffice for the Use of the *Medicinal Regulus* in Pharmacy. The Subject might indeed be much farther protracted; but as that is not necessary, I shall only repeat, that in many Shop Preparations the *Medicinal Regulus* may be us'd, as a proper Succedaneum to *Antimony* itself.

I now come to the third and last thing propos'd, which was, to inquire into the Use of this *Medicinal Regulus* in the Practice of Physic; and here I cannot help condemning those who with exaggerated Encomiums extol this *Regulus* as an universal and divine Panacea; as for my own Share, I can with greater Cheerfulness go into the Sentiments of those who observe a due Medium in this Point. Its Efficacy is highly extoll'd in chronic Disorders, and such as arise from long-continued Obstructions of the Viscera: Hence our learned President, in his Notes upon *Potterius*, commends it in Dropsies, Epilepsies, Scurvies, and Fevers; for as these Disorders are of a stubborn and obstinate Nature, they require Medicines which do not, like vegetable Substances, too quickly produce their Effects, but remain

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for a considerable time in the Body; and by often impelling the tenacious Matter, at last entirely break and subdue it. Hence we may easily conceive why this *Regulus* must be a Medicine of singular Efficacy in surmounting the Obstinacy of chronical Disorders. There are also not a few who highly extol its Efficacy against Fevers. *Maetsius*, in his *Chym. Ration. & Artis Curios. Lugd.* says, that it is a *Specific Diaphoretic in Fevers of all Sorts*. The same Author commends it in all Disorders where, to use his own Words, *Sweats are wanted, because it does not, like vegetable Substances, inflame the Blood*. I myself am inform'd by People who were acquainted with this Author when alive, that he made daily Use of this *Regulus*; and his own *Praxis Chymiatrica* is a concurring and additional Proof, that he did so; for in that Work he maintains, *That it is of uncommon Efficacy in all Diseases where the Motion of the Lymph, and insensible Transpiration, are to be promoted*. Thus he commends it in the Gout, the Apoplexy, &c. but more particularly in Fevers. This he has also done in *Artis Curios. Lugd.* where he orders it to be used with a diaphoretic Regimen. *Barkhyisen* joins Issue with *Maetsius*, and highly extols its sudorific Virtues in Fevers, and cutaneous Disorders. *Körnig* declares himself of the same Sentiments in his *Regnum Minerale, Cap. 9.* where he also proposes a Form of a Medicine consisting of the *Medicinal Regulus* reduced to a Bolus, with *Pernovian Bark*, and *Theriaca*, to be taken a few Hours before the Paroxysm of the Fever. But notwithstanding the high Encomiums bestow'd upon this Medicine by its Inventor, I should not advise any one to use it in violent Quartan Fevers; because Dropsies, and other Disorders, are very often brought on by the Use of Medicines that are so astringent, and capable of producing such strong Commotions. This Medicine is also commended by some in Cases where the State of the Lymph is bad, in Dropsies, Anasarca, &c. as I have already observed. But particularly with regard to its Use in an Anasarca, I have been satisfied by the learned and judicious Mr. *Hennike*, who mixed it with *Mercurius Dulcis*, and used it under that Form with uncommon Success. Our learned President, in his Notes upon *Potterius*, orders it to be prescribed in small Doses, with the Bezoardic Powders, in the first Stages of malignant Fevers, Small-pox, and Dysenteries, *Because*, says he, *by its Means a gentle Salivation and Diaphoresis are brought on, and the Mucus of the Primæ Viæ being attenuated, the Heaviness and Uneasiness of the Præcordia are remov'd*. I also remember, that when malignant Fevers rag'd pretty much in my own Country, that excellent Chymist *Kollwagius* often us'd this *Regulus* with the greatest Success; of it, together with some other earthy Absorbents, he compos'd an alexipharmic Powder, which is in constant Use at this very Time. This Powder is accurately describ'd by the learned *Apinus*, in his *Tractatus de Febribus epid.* where, from his own Experience, he ascertains the Efficacy of it, but particularly of the *Regulus*, in malignant and epidemical Fevers. I also know, that the *Regulus* was used by the above-mentioned Dr. *Hennike* in these Disorders; but in Process of Time he desisted from using it so frequently as he had formerly done, on account of some Inconveniencies that arose from its being negligently prepared; and chose the *Bezzardicum Joviale*, or the *Antibeticum Poterii*, as a Succedaneum to it. *Maetsius* commends the Lixivium of its Scoriae apply'd externally as a proper Medicine for the Itch; and I remember, that, by my Father's Advice, not only I myself, but a great many others, labouring under this Disorder, us'd this Medicine with incredible Success. I also remember to have seen the *Regulus* itself mixt with earthy Substances used in the Itch, and have known it in that Form, and in Conjunction with a sudorific Regimen, to remove oedematous Swellings, especially of the Feet. Hence we may plainly perceive the Efficacy of this *Regulus*, in augmenting the Motions of the Humours, which, in this Case, were hinder'd from rising to their greatest Height, by the Addition of the earthy Astringents. Having thus said something concerning the Use of the *Medicinal Regulus* in the Practice of Physic, I shall now subjoin a few Hints relating to the Manner in which it operates.

Now, as the *Medicinal Regulus* produces two Effects, which are promoting a Diaphoresis, and removing the Lensor of the Humours, so it seems to operate in two different manners, one of which consists in promoting the several Motions, and the other in correcting the Qualities of the Humours; but this latter does not exert itself so strongly as the former. It acts in the former of these manners both in Consequence of its *sulphureous* and its *reguline* Parts. As for *Sulphur* in general, 'tis sufficiently known, that it not only contains the very Matter of Fire, which is itself easily susceptible of the quickest Motions, and sufficiently capable of augmenting the Motion of the Humours; but also, that from its being a Mixture of a phlogistic with a vitriolic Acid, it possesses a *tonic Force*, as daily Experience teaches us, upon observing its Efficacy in repelling the Itch. By this *tonic Force* the relaxed Vessels recover their natural Tone; and by this means the Blood being not only put into a more violent Motion, but also forc'd thro' narrower Ducts, must of course be more attenuated, and acquire a greater

Degree of Subtilty. As to its *Reguline* Part, we are to observe, first, that it receives a stimulating Force from an Addition of the arsenical Parts, and thus becomes capable of exciting strong and brisk Motions in the Spirits. Secondly, That by reason of its mercurial Nature it is capable of penetrating and dissolving not only the thick and viscid Humours lodg'd in the *Primæ Viæ*, but also those which are intermixed with the Mass of Blood itself, and retard its progressive and intestine Motion. Hence we see in what manner it may correct the Defects of the Lymph, clear the Viscera, when obstructed with Crudities of this Kind, promote the several Secretions, and render the Juices fit for Motion. In these last mentioned Effects, or in changing the Qualities of the Fluids, its second Manner of operating consists.

It now only remains, that I say something concerning the Method of administering this *Medicinal Regulus*. It may then be commodiously enough exhibited in the Form of a Powder, since the Dose necessary for any Purpose is neither large nor nauseous. If it should happen to be a little too heavy, it may be mixed with the lighter Absorbents, as they are call'd, prepared of Mother of Pearl, Crab's-eyes, &c. Such other Substances may also be mixed with it, as the Diversity of Disorders shall be judg'd to require. Thus our learned President orders it to be exhibited with gentle Chalybeats in Dropsies; in Epilepsies, with cinnabarine Preparations; and in intermitting Fevers, with digestive Salts, Absorbents, &c. I have above taken Notice of its uncommon Efficacy in an Anasarca, when mixed with *Mercurius Dulcis*; for by its Means, half a Scruple of *Mercurius Dulcis* has sometimes prov'd of more Efficacy, than two Scruples would have done without. Some add it to Vomits as a Stimulus, and by way of a Digestive. In Form of a Potion it may be mixed with other Diaphoretics, Anodynes, &c. with Diacordium, the *Theriaca Cœlestis*, the Bezoardic Tincture, the Tincture of Opium corrected with Salt of Tartar, and with the diaphoretic Waters of Germander, Chervil, and Cherries. *Maetsius* in his *Chymia Rationalis*, and *Apinus*, in his *Treatise de Febribus Epidem.* have given Formules of this Kind. It may also be exhibited in the Form of Pills, with resinous and resolvent Gums, and with the aperient bitter Extracts of Wormwood, *Carduus Benedictus*, Germander, Fumitory, Scurvy-grass, Saffron, Gum Ammoniac, Sagapenum, Hedera, Myrrh, Aloes, &c. When the *Regulus* is prudently and skilfully mixed with such Substances, it becomes a far from despicable Medicine in menstrual Disorders, and Infarctions of the Viscera. Its Dose is from six Grains to one Scruple, and upwards, as the State of the Patient shall require. But before this *Regulus* is used, it must be so thoroughly triturated, and, upon a Marble, reduced to a Powder so fine, that none of the shining Sparkles may in the least appear: For this Reduction of it to so fine a Powder is absolutely requisite, both to its easy Solution, and its speedy Operation; and if this Caution should not be observed, it remains too long in the Intestines, and may possibly give Rise to very terrible Symptoms; and it also even passes off with the Excrements, which is often the Case with cinnabarine Preparations. *Hoffman. Medicin. Rational. System. Vol. 4.*

Dr. *John Pringle* has, in the *Edinburgh Medical Essays*, oblig'd the World with an Account of an *antimonial* Remedy for a Dysentery, made public by Dr. *Young*. This at the first Appearance seems to be one of the most unlikely Remedies that could be contriv'd to answer the End propos'd. But as I have it from very good Hands, that Experience, the only thing which can determine the Value of a Medicine, is much in favour of this, I apprehend an Account of it ought not to be omitted in a Treatise of *Antimony*, tho' I have not myself been a Witness of its salutary Effects.

#### *Utrum Antimonii Ceratum.*

Take Glas of Antimony in Powder, one Ounce; Beeswax, one Dram: Melt the Wax in an Iron Ladle; then add the Powder; set them on a slow Fire without Flame, for the Space of half an Hour, continually stirring them with a Spatula; then take it from the Fire, pour it upon a Piece of clean white Paper, powder it, and keep it for Use.

When I prepared this Quantity, it lost a Dram of its Weight. The Glas melts in the Wax with a very slow Fire.

I was at first so scrupulous in preparing the Medicine, that I wish'd the Degree of Heat had been assign'd, as well as the Space of Time necessary in the Preparation; but I have since found, that I both vary the Time and Degree of Heat, without perceiving any Difference in the Operation of the Medicine.

After it has been about twenty Minutes on the Fire, it begins to change the Colour; and in ten more, comes pretty near the Colour of Snuff: By that Colour I know it is sufficiently prepared, without attending to the Degree of Heat, or Space of Time.

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The ordinary Dose for an Adult, is ten or twelve Grains ; but for the greater Safety, I commonly begin with six ; to a strong Man I have given a Scruple, which sometimes works so mildly, that I have thought it too weak.

To weakly Constitutions give five or six, increasing the Dose afterwards, according to the Operation.

To a Boy of ten Years of Age, give three or four Grains.

To a Child of three or four Years, two or three.

This Medicine has been practised with Success for the Dysentery, and the Preparation of it was kept a Secret for many Years.

When first it was communicated to me, I thought it so harsh and dangerous a Medicine, that I had no Courage to try it for some Years ; and even then I began the Dose with one Grain, and increased it gradually to twenty, which is the largest I have yet given. As soon as I was convinced, by a Number of Experiments, that it was both mild and efficacious in curing the Dysentery, I published the Receipt in our *Edinburgh News-papers*, being under no Promise of Secrecy with regard to this, and being resolved never to make a Secret of any Medicine whatever.

I do not expect, that any Physician will incline to give a full Dose at first, without better Authority than I can give to Strangers ; but the Cautious may give a small Dose as they please, and make first Trials almost in any Disease where Purgatives will do no Harm, and increase it gradually as they find it operate.

I gave it in Dysenteries with or without Fever, whether epidemic or not.

I have tried it often where Bleeding and Vomits have been premised, and where they have not, with very good Success.

I never chuse to give Opiates in the Beginning, especially where there is a great Sickness ; because, altho' Opium gives great Relief to some, yet at other times I have thought both the Sickness and Purging thereby increased the following Day.

I never began with a larger Dose than ten Grains, because it frequently operates as violent at first, as twenty Grains at last, even upon the same Patient.

In its Operations, it sometimes makes the Patient sick, and vomits ; it purges almost every Person, but I have known it cure without any sensible Evacuation or Sickness ; nay, in violent Dysenteries, they purge seldomer with it than without it.

If it purge sufficiently, or fatigue the Patient any way, I intermit a Day or two betwixt each Dose, the same way as I do with other Purgatives.

As I have cured some with one Dose, I have been obliged to give others five or six, especially when the first Doses have been too mild, and I have often thought a weak Dose did no good in Chronic Cases.

After the second or third Dose, the Stools are seldom bloody, the Gripes and Sickness are much abated, and the mucous Stools are less viscid.

Give it with an empty Stomach ; for then, I think, it operates most mildly.

Forbid drinking any thing after it for three Hours, unless the Patient is very sick, or disposed to vomit, in which Case give warm Water as in other Vomits.

Beware of giving it for a Diarrhoea in the End of a Consumption. I have cured some other Diarrhoeas of long standing with large Doses of it ; but it has failed oftener here than in Dysenteries.

I forbid the Use of all fermented Liquors, and recommend a Milk-diet with Rice or Bread, Chicken-broth, or Water-gruel.

I give nothing cold, unless it be a Tea-spoon-full of Gelly of Hartshorn, as often as the Patients please ; and sometimes I indulge them with the Gelly of Currans to refresh their Tongue.

It may be given safely to Women with Child, and to Children on the Breast you may give half a Grain. *G. N. Edinburgh, Med. Essays, Vol. 5.*

*Antimony* has in all times, since its Medicinal Virtues were first discover'd, afforded the Empirics their most boasted Secrets, as may be known by the Irregularity of their Operations ; for *Antimonial Remedies* have this singular Property, that they will sometimes operate with great Violence ; and sometimes even in the same Dose, and same Person, without any apparent Alteration of Circumstances, shall have no visible Operation.

This, if there was no other, is a sufficient Evidence, that the Pill Mr. Ward first set out with, was Antimonial, of which there is now no room to doubt : As to the specific Preparation he makes use of, it is not very material, since there are many different Sorts of them made, by depriving this Mineral of a Part of its Sulphur, and laying the Reguline Part naked, which will have much the same Effects, in the same small Dose.

I shall conclude this Article of *Antimony* with an Account of a Remedy, which has lately been advertised, and for which a Patent has been obtained ; I mean, Mr. Hayward's Powder for the Rheumatism and Gout, which promises no less than

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the Cure of the last-mention'd Distemper, after it has puzzled all the Physicians in the World for so many Centuries. It seems therefore to be of some Importance to examine how far this Remedy is likely to answer the Character given of it by the Persons concern'd in point of Interest to promote the Sale, because these may be prejudic'd in its Favour. I must, however, first inform those who are unacquainted with it, that every one who takes out a Patent for any Invention, is oblig'd by Act of Parliament to specify the Particulars of it, and inroll them in the Court of Chancery, within four Kalendar Months, that the World may have the Advantage of the Discovery, and the Monopoly for fourteen Years is the Reward for making it. After this Specification is inrolled, I apprehend every body, who thinks it worth while to pay the Fees, has a Right to have recourse to the Inrollment.

Mr. Hayward's Remedy then, is a Preparation of *Antimony* and Nitre, made by rubbing them together, till no shining Particles of the Antimony are apparent. Of this each Dose for an Adult is twenty-seven Grains.

I have before observed, that *Kunckel* found some Relief in Pains with which he was afflicted, by taking, pursuant to the Advice of the younger *Semertus*, crude Antimony ; and that *Kunckel's Troches* are, at this Day, famous for erratic Pains, at *Frankfort* and *Nuremberg*, which are prepar'd of crude *Antimony* ; and I cannot doubt but that crude *Antimony*, join'd with Nitre, may sometimes do Service in slight Rheumatic Cases, if duly persilled in. But I am far from believing, that it is possible to cure any Degree of the Gout by such a Remedy.

With respect to Patents for Medicines in general, it is to be observed, that it is not very easy to come at a Knowledge of the real Efficacy of such Remedies ; for, in the first Place, it is not always certain, that the Cases which are published by the Proprietors, are literally true in every Circumstance ; or, tho' they are, we should only hear of those Cases which were attended with Success, whereas a thousand Cases, where the Remedy had no good Effect, would be suppressed.

There are, however, People enough in the World of more Faith than Understanding, to make it worth the while of designing Men, to vend for Secrets the most common Preparations of the Shops, to their own Benefit at least, because the Prices of these Secrets are usually very exorbitant.

I don't know, that the Price of the Remedy I have spoken of above is more extravagant than those of other Nostums ; if not, we may judge of the rest by this.

The Price of crude Antimony is Four-pence a Pound, and never above Six-pence, when bought in Quantities. Nitre is, I believe, at this time, worth a Shilling a Pound, tho' seldom so much. Supposing then a Pound of each to be sold at five Shillings, for every twenty-seven Grains, the whole two Pounds will sell for 142 *l.* and some little more, enough to pay for the Ingredients.

*Stahl* calls that Tincture of Antimony, which is made by throwing *Diaphoretic Antimony*, immediately after Detonation, into Spirits of Wine, and digesting it, *Tinctura Antimonii Alcalica acris*.

I omitted mentioning above, that the *Liver of Antimony* and *Crocus Metallorum* are the same, except that the former is unwash'd, the latter wash'd.

ANTIMONIUS LAPIS. The Antimonial Stone. *Myrrhus*, *Serapion*, and some others, reckon Antimony among the Kinds of Stones ; and *Myrrhus* particularly, in *Scet. 1. Cap. 470.* as *Fuchsius* observes in his Notes thereon.

ANTIMOROS, ἀντιμωρος, from ἀντι, against, and μωρος, Death, or a Disease. The true Name, according to *Fuchsius*, of an Antidote in *Myrrhus*, *Scet. 1. Cap. 25.* instead of *Diatamaron*, as it is there read ; which plainly shews, that *Myrrhus* translated this Composition from some barbarous Author, who miserably corrupted the Word ; for some of the more correct Latin Copies read *Antimoros*. *Fusch. Note on the Place above named.*

ANTINEPHRITICA, ἀντινεφριτικά, from ἀντι, and νεφριτικός, a Pain in the Kidneys. Remedies against Disorders of the Kidneys. *Blancard.*

ANTIOCHI HIERA, the Hiera of *Antiochus*. A compound Medicine, prepared as follows :

Take of Germander, Agaric, the Pulp of Colocyntsis, Stoechas, each ten Drains twenty-five Grains ; Opopanax, Sagapenum, Parsley, Birthwort, white Pepper, each five Drains twelve Grains ; Cinnamon, Spikenard, Troglodytical Myrrh, Indian Leaf, each four Drains ten Grains ; Honey a sufficient Quantity. It is good against Melancholy, Madness, Epilepsy, and for all those whose Blood abounds with Impurities. *Actius Tetr. 1. Serm. 3. C. 114.*

ANTIOCHI THERIACA. The Theriaca which King *Antiochus* the Great used against all sorts of Poison, the Prescription of which was cut in Stone, at the Entrance of the Temple of *Asculapius*.

Take of Thyme, Opopanax, Millet, each two Drains five Grains ; Trefoil, one Dram two Grains and a half ;



the Seeds of Dill, Fennel, Anise, Bishops-weed, and Smallage, each sixteen Drams fifteen Grains; Meal of the bitter Vetch, twelve Drams thirty Grains. Pound them, and sift them, and afterwards, with the best Wine, make them up in Troches of half a Dram, one of which in a quarter of a Pint of Wine, is a Dose. *Pliny, Lib. 20. Cap. 24.*

**ANTIPARALYTICA**, ἀντιπαρελυτικά, from ἀντί, and παρ᾽ αὐτοῖς, the Palsy. Medicines against the Palsy.

**ANTIPATHES**, ἀντιπαθής. What they call *Antipathes*, is to be accounted *Coral*, tho' of a different Kind from the common Sort. It is of a black Colour, has the Form of a Tree, and is more branched than the other. It agrees in Virtues with the common Coral. *Dioscorides, Lib. 5. Cap. 140.*

**ANTIPATHIA**, ἀντιπάθεια, from ἀντί, against, and πάθος, an Affection. Antipathy. It is said to be a kind of occult Quality, opposite to Sympathy, when there is a natural, but unaccountable Hatred or Aversion between two Things, which endeavour to remove or destroy one another. Thus *Galen, Lib. 11. de Simp. Med. Fac. §.* says, that some have written, that old Leather, burnt, cured Galls by a sort of Antipathy.

*Charlton* thinks, that the whole Affair of Sympathy and Antipathy might be accounted for from the various Motions and Configuration, the mutual Cohesion and Combination, or the reciprocal Embracing or Repulsion, of the perpetually exhaling Corpuscles or Effluvia which meet together. *Castellus.*

**ANTIPATRI THERIACA**, *Antipater's Treacle*. It is thus prepared :

Take of Gentian, four Drams ten Grains; Trifolium, (stinking Trefoil) four Drams ten Grains; Seed of the same, two Drams five Grains; Poley, four Drams ten Grains; Sowbread, two Drams five Grains; Hog's-fennel, Galbanum, each two Drams five Grains; Parsley, four Drams ten Grains; Wood-rue, three Drams seven Grains; Pellitory of Spain, one Dram two Grains and a half; Staves-acre, two Grains and a half; Mace, three Drams seven Grains; the Root of the white Vine, two Drams five Grains; as much white Pepper; Gum Ammoniac, one Dram thirty-four Grains; Mullen, Ground-pine, Mezereon, small Horehound, the lesser Fleabane, Ethiopian Cummin, Opium, Castor, Fennel-seed, Agaric, Cassia Rufa, the Flower of Juncus Odoratus, Rhubarb, each two Drams five Grains; *Cretan* wild Carrot, one Dram thirty-four Grains; as much Opopanax, Sagapen, two Drams thirty-six Grains; Southern-wood, one Dram thirty-four Grains; Styxax, Dittany, each one Dram thirty-four Grains; Cinnamon, Spikenard, each three Drams seven Grains; Myrrh, four Drams ten Grains; Frankincense, one Dram two Grains and a half; Saffron eight Drams twenty Grains; Anise, one Dram two Grains and a half; Cyrenaica Lacryma, (I suppose he means *Asia Foetida*) one Dram two Grains and a half; Hind's-runner, three Drams seven Grains; *Attic* Honey, a sufficient Quantity. The Dose is the Quantity of a Haste-nut. It prevents or cures the Bite of an Asp. *Scribonius Langus, Cap. 42.*

**ANTIPERISTASIS**, ἀντιπερίστασις, from ἀντί, and περι-στέχειν, to surround. A Strengthening, Cohibition, or Compression all around, as for Instance, by the circumambient Air or Water; and thus there is an Antiperistasis, or Compression of Heat or Cold by the circumfus'd contrary Quality. Thus *Theophrastus, Lib. de Igne*, imputes the Cause why Men are more robust, and have better Digestions in the Winter, to a more potent Collection of Heat by an *Antiperistasis*, συνέστασις ὅ ἐν τῷ χειρῶν καὶ συγκυλίκεκκασαι τὸ θερμὸν ἐκτὸς τοῦ σώματος, καὶ τὰ σώματα πίπτει τὰς τροφὰς μᾶλλον, καὶ ὅλως ἰσχυρότερον τοῖς χειμῶσιν εἶναι, ὅτε συνιθροῖσθαι καὶ ἀντιπερίστασθαι τὸ θερμὸν. "In the Winter Heat is contracted and inclosed" by the circumambient Air, and Bodies better digest their Food, and are on all Accounts stronger and more robust in cold Seasons, from a Coacervation and Antiperistasis of the Heat." *Theophrastus.*

**ANTIPHARMACUM**, ἀντιφάρμακον, from ἀντί, against, and φάρμακον, Poison, Medicine. An Antidote or Preservative against Poison. Thus *Dioscorides, Lib. 2. Cap. 185.* speaking of Nasturtium, or Water-crelles, says, ἐπεὶ οὖν εἰν ἀντιφάρμακον, "It is a Remedy against the Poison of Rep-tiles." In this Sense it is the same as **ALEXIPHARMACUM**.

**ANTIPHTHISICA**, ἀντιφθισικά, from ἀντί, against, and φθίσις, a Phthisis, or Consumption. *Blancard.*

*Tinctura Antiphthistica*, a Tincture against a Consumption.

Take of Saccharum Saturni, and Vitriol of Iron, each an Ounce; French Brandy, a Pint; and, without Heat, draw a Tincture. *Edinburgh Dispensatory.*

*Quincy*, in his *English Dispensatory*, gives it thus :

Take Salt of Steel, and Saccharum Saturni, each four Ounces; put them into a Matrafs with two Pints of good French Brandy. Twenty Hours Digestion will make a beautiful Tincture.

This is by some accounted a Specific in Hectic Fevers: And it is not an unlikely Medicine in such Cases, because it will astringe and draw up the Fibres, whereby their Tone will be render'd more rigid, and the Pores and secretory Passages streighten'd, so that the Juices and Nourishment itself will not so soon run off by those Ways. It will also procure a firmer Texture to the Blood itself, which, in those Diseases, is almost fused and broken. This is also good in many Hysterical Affections.

**ANTIPHTHORA**, ἀντιφθορά, from ἀντί, against, and φθορά, Corruption. A Species of Wolf-bane, so called because it resists Corruption. *Blancard.*

**ANTIPHYSICA**, ἀντιφυσικά, from ἀντί, and φυσάω, or φυσώω, to blow. Remedies against the Wind. See **CARMINATIVES**.

**ANTIPHYSON**, a Name for the Loadstone in *Marcellus Empiricus, Cap. 1.*

**ANTIPLÉURITICUM**, ἀντιπλευρητικόν, from ἀντί, against, and πλεῖσις, the Pleurisy. A Remedy against the Pleurisy. *Blancard.*

**ANTIPODAGRICA**, ἀντιποδαργικά. The same as *Antiarthritica*, which see before.

**ANTIPRAXIA**, ἀντιπραξία, from ἀντί, and πράσσω, to work. A Word which signifies a Contrariety of Functions and Temperaments in different Parts, and was used by the Antients to express the Variety of concurring and often contrary Symptoms in Hypochondriacal Affections, as when a cold Stomach is join'd with a hot Liver. *Castellus.*

**ANTIPTYRETON**, ἀντιπυρετικόν, from ἀντί, against, and πυρετός, a Fever. A Febrifuge, or Remedy against a Fever. *Castellus.*

**ANTIPTYREUTICON**, or, **ANTIPTYRETICON**. The same as the preceding. *Blancard.*

**ANTIQUARTANARIUM**, **ANTIQUARTIUM**. A Medicine against a Quartan. *Blancard.*

**ANTIQUI MORBI**, old or inveterate Diseases, which are lengthen'd out beyond the fortieth Day, perhaps to very many Years; Chronical Diseases.

**ANTIRRHINUM**, Offic. *Antirrhinum minus*, Ger. 439. Emac. 549. *Antirrhinum sylvestre medium*, Park. Theat. 1334. Mer. Pin. 9. *Antirrhinum primum Matthiolo*, Merc. Bot. 1. 20. Phyt. Brit. 9. *Antirrhinum arvense*, Rivin. Irr. M. 82. Dill. Cat. Gisl. 127. *Antirrhinum arvense majus*, C. B. Pin. 212. Tourn. Inst. 168. Elem. Bot. 137. Boerh. Ind. A. 233. Rupp. Flor. Jen. 196. *Antirrhinum arvense minus*, Hist. Oxon. 2. 505. *Antirrhinum angustifolium sylvestre*, J. B. 3. 464. Raii Hist. 1. 760. Synop. 3. 283. *Antirrhinum angustifolium quibusdam, minus aliis*, Chab. 483. **SNAP-DRAGON**, or **CALVES-SNOUT**.

*Antirrhinum* is also called *Anarrhinum*, and by some *Lychnis Sylvestris*. The Stalk and Leaves of this Plant resemble those of Pimpernel; the Flowers are purple, and like the Stock-gilly-flower, but smaller, for which Reason it has the Name of *Lychnis Sylvestris*. It bears a Fruit like a Calf's-Snout, and of a carnation Colour.

The Plant, worn as an Amulet, is said to have a secret Virtue against Poisons, and to confer Gracefulness on the Person who is anointed with the same, together with the Oil of Lillies, or of Cyprus. *Dioscorides, Lib. 4. Cap. 133.*

*Antirrhinum*, apply'd as a Pessary, with Honey, and Oil of Roses, helps the Strangulation of the Uterus, and a Difficulty of the Menfes. *Plin. Lib. 26. Cap. 15.*

*Antirrhinum* has the Virtues of the *Dubonium*, (Starwort) but in a weaker Degree. *Paulus Aeginet.*

Of this Herb there are several Species, such as the *Antirrhinum Officin.* the *Primum Matth.* the *Minus Tab.* the *Minimum Lob.* the *Sylvestre Dod.* the *Sylvestre Medium*, Park. the *Arvense majus*, C. B. and some others. It is the *Bucranion* of *Galen*, the *Cynocephalion* of *Apuleius*, and the *Os Leonis* of *Columella*.

It is found in great Abundance in the Fields, and sometimes in Gardens; but this latter Species is larger than the former, and must be renewed by fresh Seed. Its various Species are of various Colours, yellow, for Instance, red, purple, and carnation, but all of them have prickly Mouths: For this Reason *Columella, Lib. 10.* calls it *Serena Leonis Ora*.

The Whole of this Fruit is sometimes found in Apothecaries Shops. But it is never used except by some foolish and superstitious Women, who fondly imagine it to be a Preservative against Spectres, Sorceries, and Witchcraft. For this Reason they put it into their Childrens Cradles, perfume their Houses, in order to banish Spectres, and prevent Witchcraft. *Theophrast. H. Plant. Lib. 9. Cap. 21.* says, that it contributes, in some measure, to a Person's acquiring Fame and Reputation. It is also said to cure the Falling-sickness, when worn about



about the Neck. See *Plin. Lib. 25. Cap. 10. Joh. Agric. Chirurg. parv. Salmaf. ad Solin. J. Johnston Thaumaturg. Class. 5. Cap. 1. G. H. Velsch. Not. ad Reusner. J. W. Weddel. Amæn. Mater. Med. Franc. Paulin. Tr. de Bufonc. Sylv. Rattray Tr. de Sympath. & Antipath. in Theatr. Sympathet. & Joh. Hick. Cardiluc. Part. 1:* where he makes mention of some Medicines prepared of it against Witchcraft. Its Seeds are also an Ingredient in the fœtid Plaister of *Mynsicht*, the Use of which is wonderfully recommended against *Spells*. *Matthioli* says, that at a Gentleman's House he saw it tied about the Neck of a Dog, who was chain'd and bark'd continually, but especially when he saw a Stranger; but that, for eight Days past, this Dog had not bark'd at all, whereas upon taking this Herb from about his Neck, he immediately began to bark. The Water in which this Herb has been boil'd, is said to cure the Jaundice, if drunk.

This is a Plant of which *John Bauhin* describes three different Sorts. The first sends forth several Stalks, about the Height of a Foot and a half, and sometimes more than two Feet, full of a white Pith, the Leaves resembling those of (*Leucium*, or) the Stock-gilly-flower, of a somewhat acrid Taste: The Flowers surround the Extremities of the Stalk, are of a carnation or white Colour, and of an oblong Figure, or in the Form of a Pipe, which represents at the End a Cat's or Lion's Snout; from whence the Plant takes its Name. The Flower is succeeded by a Fruit resembling a Dog's Head, or rather, that of a Hog, containing small black Seeds: The Root is woody and white.

The second is called *Anarrhinum seu Lychnis Sylvestris*, of *Dioscorides*, called in *French Mourin Violet* (or Pimpernel of a violet Colour); it sends forth a Stalk and Leaves resembling those of Pimpernel: The Leaves are shaped like those of *Leucium*, or the Stock-gilly-flower, but lesser, of a purple Colour.

The third is called by *Pliny*, *Anarrhinum, seu Lychnis agria*, resembling Flax; the Flower like that of Hyacinth; the Fruit of the Figure of a Calf's Snout. The Root is very small.

Calves-snout grows in Fields, and sandy Places, which are cultivated, and in Vineyards.

This Plant is but seldom used in Medicine: Some pretend, that the Root of that first described is proper for Defluations of acrimonious Humours in the Eyes; and that, being carry'd about with one, it resists the Effects of a bad Air. *Lemery des Drogues*.

**ANTIRRHOPE, ANTIRRHOPIE**, ἀντίρροπος, ἀντίρροπις, from ἀντί, against, and ῥέπω, to incline. A Propension to the contrary Part. In this Sense the Words are used by *Hippocrates*, *Lib. πρὶ ἀφθέρων*.

**ANTISCOLICA**, from ἀντί, against, and σκώληξ, a Worm. The same as **ANTHELMINTICA**. *Blancard*.

**ANTISCORBUTICA**, Remedies against the Scurvy. *Blancard*.

**ANTISCORODON**, ἀνίσκορδον, from ἀντί, and σκώρδον, Garlick. A very large Species of Garlick, otherwise called, *Allium Uspicum*. It is also called *Aphroscorodon*, ἀφροσκορδον, from ἀφρός, Spume, or Froth; because, when beaten with Oil and Vinegar, it generates abundance of Spume. *Gorræus*.

**ANTISECOSIS**, ἀνίσσησις, from ἀνίστημι, to make equal, or put in Æquilibrium, which Verb is from ἀντί, and σῆκος, a Weight. Compensation. The Verb ἀνίσσησθαι is used by *Hippocrates*, *Lib. de Rat. Viæ. in Morb. acut.* to signify the compensating, to such as use to eat twice in a Day, the Loss of a Meal. Τὸν μὲν δὲν ὅτι τὸ ἐξ ἀνισσησθαι ἐμφέρει ταύτην τὴν ἡμέραν ἀνίσσησθαι. "He who thus labours under an unusual Exinanition of the Vessels, ought to have Compensation for his Loss on this Day."

Again, *Lib. de Art.* "Ὅτι ἀσφαλεσέως ἂν τὸ σῶμα, τὸ μὲν τῇ, τὸ δὲ τῇ ἀνίσσησθαι μέλειται." "Because the Body being more securely suspended, equally ponderates this way and that way." Hence ἀνίσσησις is also the same as ἀνίστασθαι, an Æquilibrium.

**ANTISPASIS**, ἀντίσπασις, from ἀντί, and σπᾶω, to draw. A Revulsion. This is a Retraction, or Aversion of a flowing Humour to a contrary Part. It is properly apply'd to a Humour actually in Fluxion, in order to divert its Course a contrary Way; for a Humour which is already settled on the Part, is not said to be carry'd off by *Revulsion*, but by *Derivation*; because it cannot be evacuated but by the Parts situated near the Place affected. Revulsion is made to a contrary Part, and far distant from the Seat of the Disease. There are four Species of Revulsion, according to the Difference of Position; for it may be made from a superior Part to an inferior, from the Right to the Left, from the Fore-part to the Back-part, from an internal to an external Part, and the contrary to all these respectively. *Galen Meth. Lib. 5. Cap. 3. and Lib. 4. Cap. 6.* assures us, that Revulsion in Medicine was the Invention of *Hippocrates*, where he seems to have in View the Beginning of the Treatise περὶ χυμῶν, whence the Rules for Revulsion are taken. In *Apb. 21. Sect. 2. Lib. 6. Epid.* he directs ἀντισπᾶν αὐτὸν μὴ ἢ δαί ῥέπει, ἢν ὃ ὅπῃ δαί, τῷ τῷ δαί τοῦτον, ὥς τις ἕκαστα

ῥέπει. "Where Things tend the wrong Way, we ought to make a Revulsion; but if they seem to tend a right Course, a Way is to be open'd for each to follow its natural Propensity." *Gorræus. Foesius*.

**ANTISPASMODICUM**, from ἀντί, against, and σπασμός, a Convulsion. A Remedy against Convulsions. *Blancard*.

**ANTISPASTICON**, ἀντισπαστικόν. A general Epithet for any Medicine that works by way of Revulsion. *Galen. Lib. 13. M. M. Cap. 11.*

**ANTISPODA**, ἀντίσποδα, from ἀντί, against, instead of, and σπόδιον, or σποδός, Spodium (Putty). Medicines endu'd with the same Virtue as Spodium, and for want thereof may be substituted in its room.

Since *Antispoda* are very serviceable when Spodium cannot be had, as it often happens, it will be necessary to shew what things are equivalent to it, and after what manner they ought to be used.

Take then the Leaves of Myrtle, with the Flowers and Berries, before they are ripe, and put them into a crude (unbak'd) earthen Pot, and, stopping it up with a Cover full of Holes, set it in the Potter's Furnace. When it is thoroughly baked, transfer the Contents into another crude Pot; and when this also is sufficiently harden'd, take them out, wash them, and use them.

After the same manner may be prepared

The tender Shoots, with the Flowers of the Wild Olive-tree, if they can be procured; if not, those of the Garden-kind may supply their Place. If neither of these are to be had, Quinces cut in Pieces, and their Cores taken out, Galls, linen Rags, unripe or white Mulberries, first dry'd in the Sun; Mastich, Turpentine, Oenanthe, (Dropwort) the tender Leaves of the Bramble, the Leaves of the Box-tree, or the Bastard Cyprus with its Flowers, any or either of these, thus prepared, will serve the Turn. Some take the tender Boughs of the Fig-tree, and first drying them in the Sun, prepare them in the same manner. Some take Bulls-glue, others rough, greasy Wool, which they smear with Pitch or Honey, and prepare as aforesaid. All these before-mentioned may be used as *Antispoda*. *Dioscor. Lib. 5. Cap. 186.*

*Pliny, Lib. 34. Cap. 13.* introducing his Account of *Antispoda*, has this beautiful Passage: *Nec in alia Parte magis est Vitæ Ingenia mirari, quippe ne inquirenda essent Minulla, vilsimis Rebus Utilitates easdem excogitavit.* "The human Sagacity in providing for the Accommodation of Life is in no respect more admirable, than in preparing Medicines of the cheapest Materials, to supply the Want of Minerals." He then goes on to enumerate the *Antispoda*, which, with the Method of Preparation, are all the same as in *Dioscorides*.

**ANTISTATHMESIS**. See **ANTIRECOSIS**.

**ANTISTERIGMA**, ἀντιστήριγμα, from ἀντί, against, and στήριγμα, any thing that sustains or bears up another. A Fulcrum, Prop, or Crutch. *Hippocrates, Lib. de Artic.*

**ANTISTERNON**, ἀντιστήρνον, from ἀντί, against, and στήρνον, the Sternum, or Breast-bone. The Back, so called, because it is opposite to the Sternum.

**ANTITASIS**, ἀντίτασις, from ἀντί, and τεύω, to extend. A Contra-extension. When dislocated Bones are first drawn back, in order to their meeting in one straight Line, this Retraction to opposite Parts is, by *Galen, Meth. Med. Lib. 6. Cap. 3.* called *Antitasis*. *Cassellus*.

**ANTITHENAR**, ἀντίθενας, from ἀντί, against, and θένας, the Palm of the Hand. The Muscle called **ABDUCTOR AD INDICEM**, which see.

**ANTITHORA**. The same as **ANTHORA**.

**ANTITRAGUS**, ἀντίτραγός, from ἀντί, and τραγός; *Ruffus* describes it to be the thicker Part of the Anthelix, opposite to the Tragus. See **ANTHELIX** and **TRAGUS**.

**ANTITYPUS**, ἀντίτυπος. See **RETIUS**.

**ANTIVENEREA**, Medicines against the *Lues Venerea*. *Blancard*.

**ANTONII SANCTI IGNIS**, the St. Antony's Fire.

**ANTONIUS MUSA**, a famous Roman, Physician to *Augustus Caesar*. See **MUSA**.

**ANTOPHYLLON, ANTOPHYLLUS**, ἀντοφυλλον, the Name of the Male Caryophyllus, so called by *Avicenna*, because of its Thickness. *Fuchs's Note in Myrs. Antid. Cap. 22.* According to *Ray*, *Antophyllus* is the Name which the Druggists have for the mature and full-grown *Caryophyllus*.

**ANTRISCUS**, *Antriscus* *Plinii*, quibusdam *Semine longo Cicentariae, vel Charophylli*, J. B. *Charophyllum Sylvestre*, C. B. *Corydum Sylvestre*, Tab. *Apium Sylvestre*, Ger. *leo. Daucus Septuagint*, Ger. *Col.*

Is a Plant about two Feet high, branchy, and hairy; the Stalk is of a greenish Brown, reddish, and rough, moist in the Inside;



Inside ; the Figure of the Leaves resembles those of Chervil, or that of *Hemlock*, beautiful, almost insipid ; the Flowers are form'd in Umbels at the Top of the Branches, each compos'd of five white Leaves ; the Seeds are slender, longish, black, of an aromatic Taste, resembling those of Chervil, but smaller ; the Root is simple, woody, white, and aromatic, of the Taste of a Parsnip : it grows under Hedges. It contains essential Salt, Oil, and a great deal of Phlegm.

It is aperitive, but little used in Physic. *Lemery des Drogues.*

ANTRUM BUCCINOSUM, the Cochlea, or Labyrinth of the Ear. *Castellus.*

ANTYLION, *αντίλιον*, the Name of a very astringent Malagma described by *P. Aeginet. Lib. 7. Cap. 18.*

ANTYLLUS, or ANTILLUS, a very famous antient Physician, cited by *Oribasius, Lib. 2. Euporist. by Aetius, Tetrab. 1. Serm. 3.* and in many other Places ; by *P. Aeginet.* who calls him the SURGEON, *Lib. 3. Cap. 40. and Lib. 6. Cap. 33. and Lib. 7. Cap. 10. and 33.* by *Stobæus, Serm. 99. Avicenna, Lib. 5. and Rhazis, Lib. 2. Continentis, Cap. 2.* and in many other Places, being I suppose the same Person as his *Antilis*, or *Antiles* ; for this Diversity in proper Names, in him and other Arabian Authors, proceeds from the Fault of the Translator, as well as the Transcribers. *Fabricius.*

ANUCAR. Borax. *Rulandus.*

ANUS. The Orifice of the *Intestinum Rectum*, by which the excrementitious Fæces are discharg'd out of the Body, by Stool.

Affections about the Anus are difficult to be cured for many Reasons. The Part is endued with a very tender Sense, and therefore is easily irritated by acrimonious and austere Medicines. Besides, the Superfluities of the Aliment in their Passage are not only acrid in themselves, but much more so on account of the bilious, and sometimes serous Humours, which pass along with them. Moreover, the Physician can fix no certain Times for attending his Patients, who sometimes go forth to ease Nature this way at an inconvenient Season. The Humidity and Heat of the Places also, which require drying as well as cooling Remedies, are no small Obstacle to the Cure of Ulcers in those Parts. For Astringents are acrid, which the Place, by reason of its exquisite Sense, is not able to bear. Wherefore such Medicines agree with them as are astringent without Asperity ; of which Quality are principally Metals, which are neither acrimonious, nor extremely rough ; these, washed, answer the Intention, and do the Work effectually without Mordacity. *Aetius, Tetrab. 4. Serm. 2. Cap. 1. from Galen.*

#### Of the RHAGADES of the ANUS.

The Anus is subject to many, and those very troublesome Diseases, which are cured by Methods not much different from one another. First of all, the Skin often chaps in many Places, which Disorder is by the *Greeks* called *παγάδες*. If it be recent, the Patient ought to keep himself at Rest, and sit in warm Water. Pigeons Eggs also are to be boiled, and when they are hardened, are to be cleansed, and while one lies in hot Water, the Place is to be fomented with another, that the Patient may for some time use them both in their Turns. Then the Tetrapharmacum, or Rhypodes Plaisters, [See the Composition of Tetrapharmacum under ABSCESS, and of RHYPODES, under that Word] are to be diluted with Oil of Roses, or fresh greasy Wool is to be moistened with liquid Cerate made of Oil of Roses, or Lead washed is to be added to the same liquid Cerate, or Myrrh mixed with Resin of Turpentine, or old Oil with Litharge, and the Place is to be anointed with any one of them. If the Disorder lies all outwardly, and the inner Parts are sound, Lint impregnated with the same Medicine is to be laid upon the Place, and whatever else is apply'd must be covered with a Cerate. In this Case we must abstain from tart and acrimonious Meats, and such as bind the Belly. No dry Food is proper, but in very small Quantities ; but liquid, smooth, fat, and glutinous Aliments are best. Nothing hinders but that the Patient may drink the mild Sorts of Wines. *Celsus, Lib. 6. Cap. 18.*

#### Of a CONDYLOMA.

A Condyloma is a Tubercle usually generated from an Inflammation. When it is form'd, the same Directions as to Meat, Drink, and Rest, are to be observed as were before prescribed for the Rhagades. It will be proper to foment the Tubercle with the same Eggs ; but before this, the Patient must sit in a Decoction of some Repellent, as Vervain ; after this, you would do well to apply some Lentils with a little Honey, Melilot boiled in Wine, or Leaves of the Bramble-bush bruised with Cerate made of the Oil of Roses ; or a Quince ; or the inner Part of the Rind of Pomgranates bruised with the same Cerate ; or Vitriol first boiled and bruised, and then mixed with greasy Wool, or Oil of Roses ; or the following Composition :

Take of Frankincense, one Dram two Grains and an half ; Plumous Alum, two Drams five Grains ; Ceruss, three Drams seven Grains and an half ; Litharge, five Drams

twelve Grains and an half ; bruise them, and while you are so doing, instil thereto Wine and Oil of Roses by Turns. The Bandage for the Place must be of Linen, or a square Piece of Woollen, which at two of its Angles has Loops, and opposite to them as many Fillets. The Piece being placed underneath, the Loops come against the Belly ; and the Fillets, being brought about behind, are passed through the Loops ; and where they are streightened, cross one another ; and proceed the Right towards the Left, and the Left towards the Right, and, being brought about the Belly are at last ty'd together in a Knot.

If the Condyloma be grown inveterate and hardened, and will not yield to the Remedies before-mentioned, it may be consumed by the following Caustic :

Take of Verdigris, two Drams five Grains ; Myrrh, four Drams ten Grains ; Gum Arabic, eight Drams twenty Grains ; Frankincense, twelve Drams thirty Grains ; Antimony, Opium, Acacia, each sixteen Drams forty Grains.

Some use this Composition to renew Ulcers in the Rhagades. If the Condyloma resists this Medicine, a stronger Caustic may be apply'd. When the Tumor is consumed, we must exchange it for gentle Remedies. *Celsus, Lib. 6. Cap. 18.*

#### Of RHAGADES and CONDYLOMATA.

A Tubercle in the Anus, which they call a *Condyloma*, consists in a preternatural Intumescence of some Wrinkles of the folded Bodies of the Anus ; for the Anus being sinuous, or full of Folds, must be set with Wrinkles. When this Wrinkle is elevated into a considerable Tumor, it becomes a *Condyloma*, which is sometimes without an Inflammation, and sometimes attended with an Inflammation, Pain, and Hardness.

The *Rhagades*, or Fissures, sometimes affect the *Sphincter*, sometimes the *Anus*, and owe their Original sometimes to the Acrimony of the Humours, sometimes to a *Condyloma*, which, being inflamed and distended, causes a Rupture, or Fissure, in the Parts about it.

They are cured in the Beginning by Medicines ; but, if neglected till they grow hard and callous, will require the Assistance of a Surgeon. In this Case, for the *Condyloma*, the Patient must be placed in a fit Posture ; and the *Condyloma*, being taken up and distended with the Forceps, must be cut quite away ; but for the *Rhagades*, they must have their callous Lips scraped with the Knife, that there may be a new Ulceration, which shall be more easily cured. After the Operations, Digestives, Mundificatives, and Cicatrizers, are to be apply'd.

Medicines proper in the Beginning are, for a *Condyloma*, which contract and consume it, the following :

Put Misy roasted into liquid Turpentine, and make them into a Plaister, and apply the same, after fomenting the Place with warm Water. This is an admirable Remedy.

Another ; the Author, *Lucius*, for Inflammations, *Rhagades*, or *Condylomata* of the Anus ; it is good also for inflamed *Rhagades* of the Pudenda :

Take of Ceruss, six Ounces forty Grains ; Litharge of Silver washed, two Ounces fifty Grains ; Recrements of Lead washed, Plumous Alum, Frankincense, each two Ounces forty Grains ; bruise them in old white Wine, and mix them with Cerate of Myrtle and Roses. It is good for foul Ulcers of the Anus, but especially about the Corona Glandis, and the Præputium, which cannot be deterged with Lint, and are exasperated by Medicines adapted to the Nomæ. In short, astringent Embrocations are to be used in Condylomas, and their Remedies ought to participate of an astringent Quality.

Another of *Andromachus*, which he uses, as he says, for inflamed *Rhagades* and *Condylomas* :

Take of the Lapis Hæmatites, or Blood-stone, Gum Ammoniac, Frankincense, Round Alum, each twelve Drams thirty Grains (in another Copy, sixteen Drams forty Grains) ; Galls, Saffron, each one Dram two Grains and an half ; Turpentine, four Drams ten Grains ; *Tyrrhenian Wax*, twelve Drams thirty Grains ; Oil of Roses, ten Drams twenty Grains ; use it for the Anus with Oil of Roses ; for the Uterus with Oil of Salca [See SALCA]. *Aetius, Tetrab. 4. Serm. 2. Cap. 3.*

#### Of CONDYLOMAS, EXTUBERANCES, and RHAGADES.

A Condyloma in the Anus differs only in the Place from a Condyloma in the Pudendum Muliebre, being a rugous Excrescence consequent upon an Inflammation or Fissure. First, it is called a *Tubercle* ; but when it is grown callous, a *Condyloma*.



*loma*. Both the one and the other are to be taken with the Forceps, and cut off; and the Cure is to be managed with Cicatrizers. As for the *Rhagades* which are caused by hard Fæces, and are slow of healing on account of their Callosity, we heal them; or by scratching them with the Nails, or the Knife, dispose them the more readily to cicatrize. *Paulus Æginet. Lib. 6. Cap. 80.*

*Of a THYMUS of the ANUS.*

The Appellation of *Thymus* is taken originally from the Tops of the Herb of the same Name, [Thyme] which grows upon Hills. A *Thymus* in the Body is a rough, reddish, oblong, tuberculous Eminence, which, when it is taken off, discharges more Blood than in proportion to its Bigness. It very commonly affects the Parts about the *Anus* and *Pudenda*, and also the Middle of the Thighs, and sometimes it appears in the Face. This Sort of Excrecence, when small, is called a *Thymus*; when of an excessive Bigness, a *Ficus*; and sometimes it is mild, sometimes malignant. The mild *Thymus* is a small uneven Caruncle, which has its Superficies exasperated by obscure, or scarce perceptible Eminences, of a whitish Colour, or somewhat red, and void of Pain. But the malignant *Thymus* is harder, rougher, and larger, and of a fœculent and livid Colour, painful, and causing a pungent Sensation, and is very much exasperated by Handling, or the Application of Medicines. A mild *Thymus* is easily cured, but a malignant one is incurable; tho' this latter is sometimes cured not by local Excision, but by taking off the Part in which they grow.

For a *Thymus*,

Take dry'd Sage, and pound it with dry'd Figs, and let the Patient eat thereof, and the *Thymus* will disappear. For the same Disease in Cattle, expose Barley to the Dew, and strew the same Herb among it, and let them feed thereon, and you will see Wonders.

*For a THYMUS in the ANUS, PUDENDUM, or any other Part of the Body.*

Take of Plumous Alum, Vitriol burnt, Glew, each one Ounce twenty Grains; of Squama Æris, two Ounces forty Grains; bruise them, and put them in Glew that has been before dissolved in Water, and anoint the Place. *Actius, Tetrab. 4. Serm. 2. Cap. 4.*

*Of a FUNGUS of the ANUS or UTERUS.*

An Ulcer, like a Fungus, frequently affects the same Parts, which, if it happens in the Winter, must be fomented with warm, in the Summer, with cold Water. After this, the Place must be sprinkled with Squama Æris, and upon this must be apply'd a Cerate made of Oil of Myrtle, mixed with a little Litharge, Soot, and Lime. If it cannot be removed by these or such-like Medicines, or by others of greater Vehemence and Force, it must be cauterized with a hot Iron. *Celsus, Lib. 6. Cap. 18.*

*Of the HERPES and NOMÆ of the ANUS.*

Sometimes the Anus is infested with a *Herpes* and *Nomæ*: If a *Noma* affect the Sphincter of the *Anus*, the Disease must be carefully treated in a Method adapted to the Cure of a *Noma*; for the Sphincter, being one of the interior Parts of the *Anus*, and very nervous, cannot bear cutting or burning, an Absecession of any Part of that Muscle being followed with Convulsions, with a Wasting and Decay of the Caruncle. This we know by Experience; for oftentimes when, for want of due Surgery, the Sphincter has been consumed by the *Nomæ*, the Wasting of the Caruncle has been the Consequence. We must therefore have recourse to such Remedies as are proper for a *Noma*; such are daily Embrocations with the Decoction of Myrtles, Rind of Pomegranate, the Bramble, and the like. And first let us cauterize the preternatural Corpuscles with the Troches called *Faustine*, [See FAUSTINE] or some such thing; then use burnt Paper, and afterwards apply the Plaster *Iris*, [See IRIS] dissolved in Plenty of Oil of Roses, and spread on Linen.

When a Phagedenic Ulcer in the *Anus* spreads by eating, something must be attempted, and a Stop put to it by dividing the corrupted Parts from those which are sound, with the Knife; after which, apply an actual Caustery to the Place; for the Podex, being a fleshy Part, can easily bear the Operation. The Cure, after the Operation, is to be managed like that of other Ulcers; but where Burning has been used, it will be proper to use the same Remedies as we have before prescribed in the like Circumstances under a *Prolapsus Ani*. *Actius, Tetrab. 4. Serm. 2. Cap. 10.*

*Tubercles, Condylomas, Cristas, Ficus, and Fungus, of the ANUS.*

Sometimes the *Anus* is infested with Tubercles at the Extremity of the Intestinum Rectum, which arise both on the Inside and Outside. Though these Tubercles are divided into various Species according to their Magnitude and Figure, and are

sometimes called *Condylomata*, sometimes *Cristæ*, sometimes *Ficus*, or *Fungi*, yet they all seem to agree in owing their Origin partly to a Redundance, and partly to a Corruption of the Blood, that stagnates about these Parts, and especially the Glandules, whence they insensibly increase in Magnitude like a Polypus in the Nose, or those Tubercles which arise in the Uterus. They often molest those who are subject to the Hæmorrhoids; nor are they only troublesome, but sometimes accompany'd with acute Pains; so that the Patient cannot sit down without much Difficulty, and is forced to implore the Help of a Surgeon. Such Tubercles in the Pudenda are judg'd by *Celsus* to be of the worst Kind; and I have often discovered in them some Seeds of the Lues Venerea. Hence it is no Wonder, that the Antients, who knew no Remedies for the Venereal Distemper, judg'd these to be the worst Sort of Tubercles.

The Cure of these must be managed like that of other Tubercles, and carnosus Excrecences, which is by Extirpation, by means of a Ligature, or Absecession with the Knife or Scissars, except their Root be too large; by this Operation I have cured several Sorts of them. If their Root be so large as to admit of no Ligature, the Tubercle is to be distended with the Hook or Forceps, and most exactly cut off with the Knife or Scissars. The Wound being made, the Blood must be suffered to run for some time, according to the Strength of the Patient, in order to prevent an Inflammation; then, after the Use of Styptics, Lint and Bolsters are applied, and the Wound is bound up. The Cure is carried on with Vulnerary Balsams, and some drying Ointment, and at last with dry Lint, to promote Conglutination. If in the subsequent Dressings any foreign Matter is observed to remain after the first Operation, Care is to be taken, that it be exactly cut off with the Scissars, or eaten quite away with blue Vitriol, Lapis Infernalis, or such-like Caustics. In many Cases the entire Tubercles themselves may conveniently enough be extirpated by the Use of Corrosives, as *Celsus* formerly advis'd, if Care be taken, that they do not hurt the Intestine or Sphincter. The Antients, when they could not remove them by Medicines, advis'd the Application of actual Causteries. *Heister. Instit. Chirarg.*

*Of an imperforated ANUS.*

Sometimes in new-born Children the *Anus* is naturally imperforated, being closed up with a Membrane. In this Case the Membrane is to be broken with the Finger, if it be possible, or else cut off with the Knife, and the Place must be healed with Wine.

Often also in grown Persons, by means of an Ulcer ill cured, there happens a Coalition of the *Anus*. In this Circumstance also the Part must be opened with an Instrument, and for the more convenient Management of the Cure, and to avoid a new Coalition, a leaden Pipe, or Cannula, anointed with some Epu-lotic, is to be put in the *Anus*, and worn till the Cure be perfected. *P. Æginet. Lib. 6. Cap. 81.*

*The Method of making an Aperture in the ANUS when imperforate.*

It sometimes happens, that a Child is born with the *Anus* quite closed up, contrary to the Disposition of Nature. These are called by Physicians *Atreti*, [from *α* Neg. and *τερεω*, to perforate] *imperforate*. The Child is immediately perceived to labour under this Defect, if it has not been observed before, by voiding no Excrements the first Days after its Birth. It might indeed be sooner known, if the Midwives, immediately after washing and cleansing the new-born Infants, did, according to their Duty, inspect this Part, and observe whether it is rightly conform'd. If this be neglected, the Physician often comes too late, as *Roonhuysen, Observ. 5. Part. 1.* well remarks.

The Quality and Degree of this Defect vary according to the different Thickness of the Tegument that closes up the *Anus*. Generally some Sign or other, as a Prominence or Pit, shews the Place where Nature designed a Perforation; but sometimes no such Mark can be perceived; sometimes only a thin Membrane comes over the Part; sometimes solid Flesh, either thicker or thinner, obstructs the Passage of the Excrements. Whatever may be the Cause of the Disorder, 'tis certain, that if the *Anus* be not speedily perforated, and a Way laid open, it cannot be avoided, but that the Excrements, call'd *Meconium*, being retained beyond their due Time, the Child will be seized with dreadful Gripes of the Belly, Vomiting, Jaundice, Convulsions, Epilepsy, and at last, vomiting up the Excrements, and so perish in a miserable manner. If only a Membrane, or thin Piece of Flesh, stops up the natural Passage, the Place where the Aperture is to be made, will be marked by a sort of Cicatrix, or shewn by the Protrusion of that Membrane, or Flesh, by the Excrement of the Child. In this Case the Cure is easily performed: On the contrary, it is with great Difficulty, and not without Danger, that the *Anus* is perforated, when a pretty thick Piece of Flesh shuts up the Rectum in such a manner, that neither Pit nor Prominence can be perceived. In the last Place, as I have more than once myself observed, either the whole Intestinum Rectum, quite up to the Colon, or highest



Part of the Os Sacrum, is closed up, or is wholly wanting, and the Intestines end about the lowest Part of the Loins, or Top of the Os Sacrum. In such a Case, we are to lay aside all Thoughts of a Cure. *Roonhuysen* relates an Instance, where the Rectum terminated in the Bladder.

If the Nature of the Defect be such as to admit the Hopes of a Cure, all we have to do is to make a convenient Aperture in the *Anus*, or Extremity of the Rectum. That this Operation may be successful, observe the following Directions: First of all, the Child is to be laid, or held in a Lap by an Assistant, in such a manner, that the Surgeon may have a clear View of the *Anus*, and have it in his Power to treat it as he pleases. Then with a Lancet, or a two-edged Incision-knife, a little bigger than a Lancet, he is to make an Incision through the Membrane, or thin Flesh, into the Rectum, almost in the same manner as in opening Abscesses. That the Operation is effectually performed, will be shewn by the Efflux of the Mæconium, or black Fæces, which must be suffered to run till they stop of themselves. This done, he is next to thrust his Finger, rubbed with Oil, through the new-made Aperture into the Rectum, and nicely feel whether the Passage be wide enough for the Excrements. If he finds it is too narrow, it will be necessary to lengthen the Incision either upwards or downwards, or both ways, as he shall see most convenient; or to enlarge the Aperture by making a new Incision crosswise, by which means the *Anus* will be the better disposed to assume its annular Figure. After this, the Surgeon is still to wait till the Child discharges whatever Fæces may be yet left behind; which being evacuated as much as shall be thought necessary, he is to thrust a pretty large Tent anointed with Oil, or some vulnerary Ointment, and ty'd with a strong Thread, or small Cord, into the fresh Wound, that there may not be a new Coalition of the *Anus*, the Thread hanging out, that if the Tent should happen to slip inwards, it may serve to draw it back, as often as the Child shall evacuate by Stool: Afterwards it will be convenient to use a new Tent, which after some Days should be rubbed over with some drying Ointment, such as that of Cerufs, till the Lips of the Wound are dried up, and there is no Danger of a new Coalition of the *Anus*. *Fliddanus*, about the End of the Cure, instead of a Tent put up a leaden Pipe, anointed with Ointment of Cerufs. But that the Tent, or Pipe, may not easily fall out, a fit Bolster is to be applied to the Wound, and firmly fasten'd upon it by the Bandage. Lastly, if, perhaps the next Day, or the Day after, it be perceived, that the Aperture, which was made the first Day, is yet too small, nothing ought to hinder the Surgeon from dilating it, as much as may be convenient.

What we have often recommended in other Operations, which is, that all things pertaining to the Dressing of a Wound, should be provided before it is inflicted, is not so necessary in the present Case, and sometimes is pernicious; because Delays in this Circumstance are often dangerous, especially when the Child has lived some Days in this Condition. For as the miserable State of the Infant often requires the most expeditious Opening of the closed *Anus*, let us forthwith make the Incision, and the Things, necessary for Dressing, may be conveniently enough provided while the Fæces flow out of the Aperture.

If a thick Membrane, or Piece of Flesh, intercept the natural Passage of the Excrements, it will be more difficult to save the Life of the Child. But it seems better, tho' perhaps in vain, to attempt the Operation, while any Hope remains, than to abandon the miserable Infant to certain Death, without the least Help. Under this Circumstance our Method of Cure must proceed in the following manner: First, let the Surgeon try, with the Help of his Finger, to discover some Mark of the *Intestinum Rectum*, as a Cavity or Passage; then the Place, under which they are perceived, is to be marked with Ink, and an Incision made therein of the Length of a Finger's Breadth. If no Fæces issue from the Wound, the subjacent Passage of the Rectum is to be anew investigated by pressing with the Finger; and, as soon as it is discovered, the *Anus* is to be perforated, either with one Stroke, or by Degrees, to the very open Passage of the Intestine: But this must be done with Discretion, and the Instrument must not be carried with its Edge towards the Pubes and Vesica, but towards the Os Sacrum; for, otherwise, there is Danger of hurting the Bladder in Boys, or the Vagina, or both, in Girls. The *Anus* being perforated, the Patient is to be treated as before directed.

If there be no Sign at all of an Opening in the *Intestinum Rectum*, then either that Part is solid, or, as I myself have seen, is wholly wanting; and this consequently renders the Cure extremely difficult, if not desperate. However, even in so deplorable a Case, it is not fit to leave the Infant destitute of all Assistance, lest we should seem to chuse rather to wait for a most certain Death, than to attempt a doubtful Cure; wherefore, fixing on a Place, which seems the safest and most convenient for the Purpose, we enter it with a triangular perforating Instrument, (*Tab. 45. Fig. 2.*) or a narrow Incision-knife, which we plunge so far in the *Anus*, till some Perforation of an Intestine discovers itself by the coming out of the Fæces. *Saviar-*

*du* has an Example to this Purpose, where he was obliged to thrust in a Knife to the Depth of three Fingers Breadth, by which he saved the Child's Life, *Observat. 3.* The Aperture, thus made, is to be enlarged with the Knife, upward or downward, as much as shall be thought fit; and the Fæces, as was before directed, being evacuated, Care is to be taken, that if there should happen a more than ordinary Profusion of Blood, from the cutting of so many Vessels, a proper Remedy may be applied. For this Purpose it seems necessary to thrust into the Wound a Tent that is big enough, and fitted with a small Cord, and rubb'd over with a proper Medicine to stop the Blood; after this we are to follow the Directions before given. At the End of twelve, or four-and-twenty Hours, it will be proper to take out the Tent, if it has not fallen out of itself, and, immediately after evacuating the Fæces, to supply its Place with another; which at first, for some Days, must be rubb'd over with a digestive Ointment, and afterwards with one which is drying, till the Conglutination be perfected: But if the Intestine cannot be opened, even by so deep an Incision, the Child can by no means be preserved; but, after long and violent ster-coraceous Vomitings, will die in Convulsions.

*ROONHUYSEN*, in the Appendix to his Observations, *Part 2. Obs. 1.* relates an Instance of a Female Child, four Months old, who had a Perforation in the *Anus*, but so small and streight, that the Mother was always obliged, with a great deal of Pains, to extract the Fæces with her Hands. The *Anus* at last swelling, because, perhaps, of the frequent Compression, the Passage of the Fæces closed up in such a manner, that there was not the least Vent: Of consequence the Belly swelled, and violent Pains, together with a Fever and Restlessness, arose, which threatened the Life of the Child. He made no Delay therefore, but first cut the *Anus* with a Lancet, and then enlarged the Incision both Ways with the Scissars; upon which issued out a vast Quantity of Excrements; the Belly soon after fell, and the rest of the Symptoms remitted, and the Wound was healed by the Method before prescribed. So *Scultetus*, in his *Armamentarium Chirurgicum*, *Obs. 71.* gives us an Example of an *Anus*, that was not sufficiently perforated. In some Girls, who have naturally a closed *Anus*, the Fæces make their Way from the Rectum to the Vagina. This Misfortune very seldom finds a Remedy; but the miserable Patients, if they survive, are afflicted with the same during Life. *Heister, Institut. Chirurg.*

*Mr. Jussieu*, according to the History of the Royal Academy of Sciences, for 1719. mentions a Girl of seven Years old, whose *Anus* was imperforate, and who discharged the Excrements by the Vulva.

#### *How to cure a Falling down of the ANUS, or the Orifice of the Uterus.*

If the *Anus* itself, or the Orifice of the Uterus, which sometimes happens, falls down, we are to consider, whether the prolapsed Part be clean, or encompass'd with a mucous Humour; if clean, the Patient is to sit in Water, either salt, or what has had Vervain, or Rind of Pomgranates boiled in it; if it be humid, it must be washed with austere Wine, or anointed with burnt Lees of Wine. When you have done either of these, the Part is to be replaced, and Plantain bruised, or the Leaves of Willows boiled in Vinegar, are to be laid upon the Place; upon these, Linen and Wool; and over all must come a Bandage, the Legs being also bound together. *Celsus, Lib. 6. Cap. 18.*

#### *For the Falling down of the ANUS.*

\*We use, first, to foment the prolapsed *Anus* with Brine or Sea-water, and oftentimes there needs no other Remedy. Sometimes we sprinkle the Part with pounded Salt, the Patient being conveniently placed for that Purpose, and wait a sufficient Time till the distilling Humidity comes forth. Then, after using Embrocations, and astringent Lituses, as Acacia or Hypocistis, in Wine, we put back the prolapsed Part into its Place. The next Day we prepare an Infusion, or astringent Infusion, such as a Decoction of Myrtle, or Olive-leaves, or Bark of Pomgranate, in harsh black Wine. But, for Children, we must avoid Astringents, and use milder Remedies: If the Case be urgent, we apply astringent Cataplasms, of Dates, Quinces, and the like, to the Loins, and also to the *Anus*. The Diet must be of good Juice, as Milk-meats, Rice-milk, and the like; and the Patient must drink Milk. Remedies for this Disorder are as follow:

Boil a Gall, and, reducing it to Powder, sprinkle therewith the *Anus*: If you want a strong Remedy, boil it in Wine; if a more gentle one, boil it in Water. Or,

Take of Bark of Pine-tree, eight Drams twenty Grains; Pills of Cypress, Plumbage, each two Drams five Grains; first wash them with sour astringent Wine, then pulverize them, and sprinkle therewith the Part affected. Or,

Take



Take of the Recrement of Lead, eight Drams twenty Grains; Frankincense, two Drams five Grains; wash and pulverize them.

Take of Balaustines, one Dram two Grains and a half; Bark of Pomgranate, two Drams five Grains; Seeds of Henbane, Cerufs, each eight Drams twenty Grains; Myrrh, two Drams five Grains; wash and reduce them to Powder.

Another Remedy, which is my own, for a prolapsed *Anus*.

Take of the Fruit of Heath, Galls, Acacia, Cerufs, Juice of Hypocistis, Bark of Pine-tree, Myrrh, Frankincense, each a like Quantity; pulverize them, and sprinkle the Powder, after you have washed the *Anus* with austere Wine.

Take burnt Lentils, burnt Bread, Meal of the bitter Vetch, each a like Quantity; apply them with Vinegar and Soap.

First, wash the *Anus* with Wine; then sprinkle thereon the Powder of dry Pitch, or of calcined earthen Pots.

Wash the Part with the Decoction of Cypress; then sprinkle it with the Powder of *Album Græcum*; and make a Suffumigation of dry Pitch, Bitumen, and Cypress. Or,

Anoint the Part with Coriander-seed and Laser in Wine; and every Day apply a Cramp-fish, and it will contract.

Take of Bitumen and Galls, an equal Quantity; dry and pulverize them, and sprinkle the Part with the Powder. This is a very celebrated Remedy. *Aetius, Tetr. 4. Serm. 2. Cap. 7.*

*Of curing the PROLAPSUS ANI by Burning, from Leonides.*

When the Disorder is grown inveterate, and next to incurable, and no Relief is to be had from Physic or Diet, recourse must be had to Burning: For tho' the rest of the Intestines are reckoned among the principal Parts, the outward Extremity of the *Intestinum Rectum* is not of that Number; but may be cut and burnt without Danger, as Experience shews. It will be convenient therefore to apply an actual Caustery, in form of a Nucleus, (or Fibula) to the external Part of the *Anus*, at moderate Intervals of Time; which, by raising a solid Eschar round the *Anus*, causes in it a Constriction capable of repressing the Part, and retaining it in its due Place. After the Burning, apply Lint, moisten'd with Milk and Honey, to the Place, and bind it up: When the Crust is fallen off, apply Lentils and Honey; and when you have destroyed the Ulcer, use a Plaister of Barley, or any other Cicatrizer proper in Affections of the *Anus*. *Aetius, Tetr. 4. Serm. 2. Cap. 8.*

In some Persons, as well Infants as Adults, the *Intestinum Rectum* (strait Gut) often falls through the *Anus* in a surprising Manner, so as to hang out some Inches, a Hand's-breath, or more. *Muraltus* has a remarkable Example of a Woman, who, after difficult Labour, had the *Intestinum Rectum* fallen out an Ell in Length: And *Saviardus* gives an Instance of another, who was but an Infant, in whom the same Part hung out no less than a Foot. This is not only a troublesome, but usually a very painful Disorder, especially to those whose Business requires Labour and Travelling; and sometimes a dangerous Inflammation, and a Tumor, with a Gangrene or Cancer, seizes the prolapsed Part of the Intestine; an Example of which kind you have in *Meckrenius*, at the End of his Chirurgical Observations.

The original Cause of this Disorder is, without Doubt, the too great Laxness or Debility of the *Rectum Intestinum*, which is afterwards promoted by the Accession of other concomitant Causes; such as some great Vociferation, or, in Infants, vehement Crying; also a Tenesmus, excessive Pains of the *Anus* from the Hæmorrhoids, a Dysentery, Stone in the Bladder, or Exulcerations of the same, difficult Child-birth, Costiveness, and the like. The Disease, in the Beginning, is, for the most part, easy to be cured; but the more inveterate it grows, the more difficult is the Cure, especially if the Patient be infirm, and of an ill Habit of Body; and if it proceeds from an inveterate Debility of the Intestine itself, there is but little room to hope for a perfect Restoration: But when a Gangrene or Cancer has seized the prolapsed Part, the Surgeon can do no more than apply to it lenient Remedies, and Fomentations; or, if it may be done with Safety, that is, when only a small Part protrudes, entirely cut it off.

The Surgeon who attends the Patient is to make no Delay, but restore the prolapsed Part of the *Anus* into its natural Situation, without much troubling himself about inquiring into the

Causes of the Disorder, or the Method of Dressing; for the longer the Intestine hangs out, the more are the Tumor and Inflammation exasperated, and the more difficult is the Cure.

In order to the replacing of the Intestine into its proper Place, the following Method is to be observed: First of all, the Patient is to lie flat upon his Face, either upon a Bed or a Table; then the prolapsed Intestine is to be very carefully fomented, especially where it is dry, with warm Wine, or common Spirit of Wine, or Milk, or with warm Water, by means of a Sponge, or folded Linen, squeez'd out of some such Liquor warmed: Soon after let the Surgeon, with his two Fingers wrapp'd in fine Linen, gently put back the Intestine into its Place, in the same manner as he would the Intestines in a Perforation of the Abdomen. This is done without much Difficulty, if the Tumor and Inflammation are inconsiderable: But if the prolapsed Part of the Intestine be very much tumefied, we are to use, besides Phlebotomy, digestive Fomentations, till the Tumor be entirely repressed, and the Part in a Condition to be restored. However, the Operation is sometimes so difficult, that one Surgeon alone is not able to reduce it without calling in another of the same Profession to his Assistance. Where the Intestine, through Debility, has been long and often subject to a Fall-down, which to some happens as often as they go to Stool, the Patients may themselves replace the Part with their Fingers, without the Help of a Surgeon, or at least the Surgeon may easily do it for them. In this Case, the Method of Cure turns wholly upon corroborating the Intestine by proper Remedies, that it may be enabled to preserve its right Situation, without Danger of a new Prolapsus.

To answer this End, and to keep the Intestine in its Place by convenient Strengtheners, so as that it may fall down no more, greater Art and Industry are required than for the Replacing of it. The Means to be used for this Purpose are such as follow:

First of all, two pretty thick Bolsters are to be provided; one of which, of an oblong Form, is to be applied lengthwise between the Buttocks; the other, which must be square, is laid over the former and the *Anus*, and carefully secured by a linen or cotton Fillet. It would be proper also, that the Bolsters should not be laid on dry, but moisten'd with some warm corroborative Decoction: A very powerful one, in this Case, is prepared of the Roots of Bistort and Tormentil, with the Bark of Pomgranate and Oak, Galls, and Oaken Leaves, and other things of that Nature, boiled in Wine, especially red Wine. The prolapsed Intestine is also, on Occasion, to be fomented with the Decoction; that is, whenever it falls down again, which, to some Persons who have been long afflicted with this Disorder, happens, as I said, almost as often as they go to Stool, or whenever they walk, or any way exert their Strength. If the Disorder be somewhat above the ordinary Degree, an excellent Powder, for corroborating the Intestine, may be prepared of Mastich, Colophony, Japan Earth, and Dragon's-blood, which, after Fomentation, must be plentifully sprinkled on the Part that hangs out, before it be replaced, and secured with a Bandage. *Saviardus*, after replacing the Gut, thrust up a Tent, sprinkled over with Astringents, through the *Anus*. Strengthening Clysters are also of good Use, such as those prepared of a Decoction of corroborating, aromatic, and astringent Herbs in red Wine, particularly what is commonly call'd *Pontiac*. These Directions being carefully observed, the Patients, except the Disease be grown inveterate and desperate, are very often restored.

If the Disease will not give way to the Remedies mentioned, the Patient must not only be treated with Suffumigations of Mastich, Frankincense, Amber, black Pepper, and other powerful Drugs of that Kind, placed under a perforated Chair; but all hard, gross, dry Food, and such as binds the Belly, must be strictly forbidden, lest in Over-straining, by reason of Costiveness, the Intestine should be again protruded. The Fomentations above-mentioned, with the Bandage, must be renewed after every Stool. The Patient must abstain, as much as possible, from Vomiting and Sneezing, and all violent Motion of the Body, and must resolve to live in a State of Rest till the Disease be subdued. *Dionis*, with some other Authors, tells us, that the Patient may effectually guard against a new Prolapsus, by taking care, whenever he eases Nature, to sit on a Stool that has a Cleft of about two Fingers Breadth, or is perforated with a Hole of the Compass of a large Piece of Money; by which Means he will restrain the Falling-out of the Intestine. Some, after replacing it, intrude a leaden Pipe into the *Anus*, and endeavour, that way, to prevent a new Prolapsus: But if the Disorder be grown inveterate, and occasioned by a remarkable Debility of the Parts, all these Kinds of Remedies, and Artifices of the Surgeon, are of no Use; but the Patients are to be treated with Bolsters and Bandage, that the Intestine may be constantly retained in its natural Place, unless we have a mind to expose them to greater Danger. *Heister, Institut. Chirurg.*



*Of a Fistula of the Anus, from Leonidas.*

An Ulcer ill cured, especially about the *Anus*, is often succeeded by a *Fistula*. When this happens, let the Patient be placed on a Couch, or some other plain Place; and let the Surgeon seat himself before him, somewhat on the Right: Then let him take a Probe, and, introducing its Head into the *Fistula*, thrust it forwards through the Cavity. After this, let him intrude the middle Finger of his Left Hand into the *Anus*, and, with it, taking hold of the Head of the Probe, bend it; and bringing both Extremities of the *Fistula* upon a Level, distend them with his Left Hand, and so cut off all the callous Corpufcles round about them, at one Stroke, if it may be done: If there remains any Callosity after the Section, it must be scraped with the Knife. A Callus is known by its whitish Colour and Renitency. If there appear any Rhagades near the Place, they must be distended with the Forceps, and cut off, that the Sore, being made plain and smooth, may the more easily be healed. After the Operation the Wound must be filled with *Manna Thuris*, on which Lint must be laid, and a proper Bandage must be made upon it, and the Cure managed like that of common Ulcers.

If the Patients, out of Tendernefs or Timidity, intreat us to cure them by Medicines, we are, first of all, to use such as are proper to dry and close up a *Fistula*. If these are ineffectual, we must have recourse to those which have the Virtue of corroding and consuming the callous Particles, and are called *Fistular Collyriums*. Medicines adapted to dry up a *Fistula* are, a Plaister prepared of Litharge of Silver, Vinegar, and Oil, *Galen's Emplastrum sine Cera*, the Plaister called *Harmonia*, *Emplastrum ex Salicibus*, *ex Lolio*, and such-like. The following is a good Remedy for *Rhagades*, *Condylomas*, and in the Beginning of a *Fistula*:

Take of the Root of Peony, burnt, four Ounces; Bitumen Judaicum, two Ounces forty Grains; crude Sulphur, one Ounce twenty Grains; Wax, two Ounces forty Grains; Oil of Myrtle, a sufficient Quantity. Or,

Burn Quinces to Ashes, and strew them upon the Orifice of the *Fistula*; then apply Lint, and upon that a Plaister of Wine or Oil, or some such thing, and bind it up: Dress it once in two Days.

Troches for a *Fistula* of the *Anus* are thus prepared:

Take Chalcitis burnt, eight Drams twenty Grains; Copper burnt, Cadmia, Earth of Crete, each four Drams ten Grains; Pompholyx, Box-thorn, each three Drams seven Grains; Aloes, Saffron, each two Drams five Grains; Gum Arabic, two Ounces forty Grains: Bruise them in the Juice of Groundsel, or that Species of Serapias which has a Root resembling three Testicles; and make them into Troches, which may be used dry, or with Vinegar, or Cerate. *Actius, Tetr. 4. Serm. 2. Cap. 11.*

*Fistulas* in the *Anus*, which are of the occult Kind, and have no apparent Orifice, are known by a Pain, and a purulent Humidity issuing from the *Anus*: They are also very often the Consequences of an Abscess. The conspicuous Sort are discovered by introducing a Probe, or a Hog's Bristle, which, penetrating the Cavity, meets with the Fore-finger, supposed to be introduced into the *Anus*, the *Fistula* being perforated towards the internal Parts; but in *Fistulas* not internally perforated, the Instrument and Finger are hindered from mutual Contact, by the imperforated Medium. *Fistulas* are known to run obliquely, and winding like a Labyrinth, when the Instrument meets with Resistance, and can penetrate but a little Way; and yet a more than proportionable Quantity of Sanies is discharged. *Fistulas* seated near the Intestine are known by the coming off sometimes of Worms and Fæces through the Orifice. They have all, or most of them, their Orifice surrounded with a Callus. A *Fistula* which has perforated the Neck of the Bladder, or is seated by the Joint of the Thigh, or has proceeded to the *Rectum*, is incurable. Those which have no Orifice, are occult, end upon a Bone, or spread into Branches, are difficult of Cure; but all the rest are easily cured.

The Operation for a *Fistula* is performed in the following manner: The Patient is laid upon his Back, with his Legs raised aloft, and his Thighs bent towards his Belly, in the same Posture as when he is to take a Clyster; and if the *Fistula* terminate in the Superficies, with the Knife or Probe introduced through the Orifice, we cut the incumbent Skin with a plain Incision. If the *Fistula* terminate deep within the *Anus*, with one Hand we introduce a Probe through the Orifice; and, if the *Fistula* be perforated, we lay hold of the Head of the Probe with the Fore-finger of the other Hand, and, bending it, bring it forth thro' the *Anus*, and cut thro' the Substance, betwixt the

two Sides of the Probe, with a plain Section. If the *Fistula* be not yet perforated, but has deeply penetrated into the *Anus*, and the Head of the Probe is hinder'd from meeting with the Finger, only by the Interposition of some squamous and membranaceous Body, we violently perforate it with the Head of the Probe, which we bring out through the *Anus*, and cut the intermediate Substance as before: Or, we first perforate the Bottom of the Sinus, in the *Anus*, with a Falx (*δρεπάριον*) made on purpose for cutting of *Fistulas*, and, transmitting it through the *Anus*, cut through all the intermediate Parts with the Edge of the Falx; then taking hold of the circumjacent Substances, which are all callous, with a Forceps, we cut them off, taking care to avoid hurting the Sphincter: For some, in making a deep Incision, after an unskilful manner, have wounded that Part; whence the Patient has been molested with involuntary Excretions of the Fæces. If any, through Fear, refuse the Operation, we must have recourse to *Hippocrates's* Line, and make use of a Ligature of Thread. For *Hippocrates* orders us to take a double-headed Needle, perforated, and threaded with a five-fold Thread of raw Flax, and pass it through the *Fistula*; then tying the Ends of the Thread in a Knot, to streighten it, every Day, till the Thread has cut through all the intermediate Substances between the two Orifices, and falls off. If the Parts are slow in separating, the Thread may be sprinkled with dry Sand, and so drawn through the Place. Some put a Thread through a Hook, made hollow like a Pipe, and pass it as above related: But these are Methods which I can by no means approve; for while they avoid the Operation, and refuse to be cut, besides other Inconveniencies, they greatly prolong the Cure.

As for occult *Fistulas*, *Leonides* says, "When the *Fistula*, which has perforated the Sphincter, lies deep, whether it began from the *Anus*, or, after making a great Progress, has seated itself in that Muscle, the Part being first searched as before, the *Anus* is to be dilated with an Instrument called a *Speculum*, in the same manner as the *Sinus Muliebris* is dilated; and when you can discern the Orifice of the *Fistula*, the Head of the Probe is to be introduced, and carried to the Bottom of the *Fistula*; and the whole *Fistula*, thus discovered, must be laid open with the Knife or Instrument appointed for cutting of *Fistulas*." But we, for our Parts, when we happen'd to meet with an Instance of this Kind, could not perform this Piece of Surgery; because we could have no Sight of the Place where the *Fistula* resided, which was on the Right, between the *Anus* and the Sphincter. But after we had dilated the *Anus* with our Fingers, a Fissure appeared, which was seated near a Wrinkle of the *Anus*, and seemed to be a Vent-hole for the *Fistula*; for it discharged Pus. Through the Fissure we introduced the Head of the Probe, as the ready Way to the *Fistula*; then intruding the Fore-finger of the Right Hand within the Sphincter, and finding but a thin Substance between the Finger and the Instrument, we pushed the Probe, with some Force, towards the Finger, and so perforated the Bottom of the *Fistula*; and, with the Finger, brought out the Head of the Probe through the *Anus*: This done, with an Incision-knife we divided the whole Substance between the two Orifices of the *Fistula*, that is, between the Fissure where we enter it, and the Perforation we had made; and so freed our Probe. *P. Æginetâ, Lib. 6. Cap. 78.*

Ulcers which infest the *Anus*, and the Parts about the *Rectum*, while recent, and discharging a laudable Pus, are called Abscesses of the *Anus*; but when grown inveterate or callous, and continually running with a thin fetid Sanies, which is sometimes more, sometimes less copious, they have been by Physicians, from the most early Times, called *Fistulas* of the *Anus*, and distinguished into various Species, according to the Condition of the Distemper: For some of them are small and recent, or at least not so inveterate; some penetrate deep, but are of narrow Extent; others, on the contrary, are grown inveterate, and so severe, deep, and extensive, as to render the *Rectum* conspicuous, and quite bare of Skin and Fat. Some very bad Instances of this kind I remember to have observed. Sometimes a *Fistula*, while recent, is without any remarkable Callus; but most of them are observed to have a Hardness, or Callus, of a thinner or thicker Substance, especially about the Orifice. Sometimes a *Fistula* takes but one strait Course; sometimes it makes its Progress by a Multiplicity of Ways, that turn and wind about. For the more convenient and distinct Consideration of them, we shall, in Imitation of the most noted Surgeons, make a three-fold Division of these *Fistulas*.

The first Sort are those which, from one or two conspicuous Orifices near the *Anus*, discharge, as we said, a thin and fetid Matter, and almost constantly appear hard, the *Intestinum Rectum*, and *Sphincter* of the *Anus*, not being yet perforated, but remaining intire. How deep, and towards what Parts, they penetrate, is best discovered by introducing a Probe into the Sinus, and the Fore-finger of the other Hand, first rubb'd with Oil, into the *Anus*: For, if there be no Perforation, the Instrument and Finger will be prevented from coming together by the sound



found and unperforated Intestine; whose Thinness or Thickness may, at the same time, be discovered. But when we are determin'd to probe these *Fistulas*, the Finger is first to be introduced into the *Anus*; for otherwise the Intestine is in Danger of being easily perforated by the Probe, and in an improper Place. Sometimes these Sinuses wind and turn in so intricate a Manner, that 'tis impossible with the Probe, how skilfully soever directed, thoroughly to investigate the Condition of the inner and smaller Sinuosities; tho' we may perceive, by the daily copious Discharges of Sanies or Pus, when the Cavities are many or great: Wherefore it seems necessary, for the better Examination into this *Fistula*, to syringe it with warm Milk, taking Notice how much enters, by which you estimate the Capacity of the Cavities; and observe whether any of the Milk returns by way of the *Anus*: If none comes back by this Passage, we judge the Intestine to be unperforated, as, on the other hand, the contrary appears, when the Milk is return'd by the *Anus*, or the introduced Finger feels the naked Probe. We are taught, however, by Experience, that tho' the Intestine be not penetrated quite through, its external Coats may be very thin and corroded, and loosen'd or disjointed from one another by intermediate Sinuses, in which Case we can never warrant a Cure without cutting the Intestine.

Another Species of *Fistulas* is known by an Efflux of Sanies from two or more Orifices, one or more of which open into the Rectum, and the rest are outwardly conspicuous near the *Anus*. Such a *Fistula* is in some measure represented *Tab. 56. Fig. 1. C C*. The same is more manifest, if the Head of the Probe introduced with one Hand into the *Fistula* meets with the bare Finger of the other Hand intruded into the *Anus*; or if a Clyster, Milk, or any other Liquor, injected into the *Anus*, is return'd by the external Orifice of the *Fistula*; or, as it sometimes happens, when the Excrements, Wind, or Worms, are voided the same way.

The third and last Species comprehends those *Fistulas* whose Orifice opens into the Rectum, the external Parts contiguous to the *Anus* remaining sound; represented *Tab. 56. Fig. 1. F G*. These are usually called secret, blind, or imperfect; the former, manifest and perfect *Fistulas*. The blind, or secret, are known by an Efflux of corrupt Matter every Day from the *Anus*, especially if no Ulcer affects the external Parts, or if the Patient complains of a Hardness or painful Tumor near the *Anus*. Sometimes the internal Orifice of the *Fistula* is found to be very deeply situated in the Intestine, but, for the most part, it is conspicuous near the Sphincter of the *Anus*, or in it; as they are both represented *Tab. 56. Fig. 1*.

However it be, the affected Place ought to be very carefully searched out, which may be done by cautiously intruding the Finger, rubbed over with Oil or Butter, into the *Anus*, and, with all the Skill requisite, exploring the internal Orifice of the *Fistula*; or if this be not sufficient, a *Speculum Ani* may be used, such as is represented *Tab. 55. Fig. 15*, or any other fit for the Purpose. But sometimes this internal and troublesome Investigation is unnecessary, as when the Seat or Sinus of the *Fistula* is evident enough from the external Tumor and Hardness.

*Fistulas* which have a double Orifice, one of which opens into the Intestine, and the other outwardly, are called *perfect* or *complete*; the rest, which have only one Vent, *imperfect*; the French call them *incomplètes*. The last Species is subdivided into two Inferiors; for, with respect to the Situation of the Orifice, imperfect or incomplete *Fistulas* of the *Anus* are some of them *external*, some *internal*. Moreover some *Fistulas* are called *simple*, others *complicated* or *compound*.

The first Denomination comprehends those which only penetrate the softer Parts, which are the Skin, Fat, and the Intestine itself: Some of these *Fistulas* make their Progress towards either Side of the Podex; some forwards, towards the Perineum, Urethra, Bladder, or Scrotum; others backwards, towards the Os Sacrum, or Os Coccygis.

By the Name of *complicated* we understand those *Fistulas* by which the Os Coccygis, the Os Sacrum, the Os Ischii, or the Bladder, or the Urethra in Men, or the Vagina in Women, as *Mustanus* observed, are so miserably corroded, that the Passages of the Fæces and Urine are become promiscuous. Sometimes the small Sinuses of these *Fistulas* reach even into the Belly; and these are the most dangerous of all. Some *Fistulas* are small, and give but little Trouble, and are supported to a great old Age, without any remarkable Inconvenience, of which I know some Examples. Others, on the contrary, are not only attended with most intense Pains, as I have very lately seen, but with a Decay of Strength and Extenuation of Body, a small Fever, and many other Inconveniencies. Again, I knew a Man who was well while his *Fistula* was open; but when that was consolidated, was soon after seiz'd with the Gout; the *Fistula* being again opened, he recover'd his Health; and thus it happen'd several times. Some *Fistulas* have an Orifice so narrow, that it can hardly be seen, or search'd with a Probe, and only now-and-then manifests itself by a Tubercle, in which, after a very curious Search, you meet with a small Hole, which is the Outlet to the *Fistula*. Others gape with a

large Orifice. Some *Fistulas* make their Progress only by one simple and plain way; others spread themselves into many Branches, which are as so many Rivulets derived from one Fountain. Some again proceed farther, and penetrate deeper, than others. Lastly, some move direct along by the Rectum; others take their Course under the Skin obliquely, or athwart, forming a Multiplicity of very crooked Sinuses, which are extremely difficult to be investigated, and consequently not easy to be cured.

The modern Way of searching a *Fistula* of the *Anus* is much after the following manner: The Patient is laid on a Table, or a Bed, upon his Belly, with his Legs spread. Then one of the Assistants strongly distends the Buttocks from one another, that the Operator may the more conveniently intrude his Finger rubb'd with Oil or Butter into the *Anus*. For in all Searches, that are ever made, of *Fistulas* of the *Anus*, which are near the Intestine, it is, as we said before, a necessary Caution, that the Probe be not far introduc'd into the *Fistula*, before the Finger is intruded into the *Anus*; for otherwise it is to be feared, that the sound Intestine will be pierced by the Probe in an improper Place, and so render the Disorder greater, and the Cure more difficult. When the Probe is thus cautiously introduced, the Buttocks are to be let go, that they may resume their natural Posture, and not by their Sides and Angles, when distorted, hinder the Progress of the Probe. If the Buttocks are in their natural and right Posture, and the Probe, being gently introduced, and softly directed every way, can make no farther Progress, there usually the *Fistula* terminates.

The Original or Cause of this Disease is commonly an Exulceration of the Hæmorrhoidal Veins, or an Abscess howsoever generated near the Intestinum Rectum, especially in the copious Fat which surrounds it. This kind of Abscesses generally arises either from a Contusion of the Podex, a Stroke, a Fall, a Wound, or an Inflammation of the Rectum, a Dysentery, difficult Childbirth, the Venereal Disease, hard Riding, and a thousand other Causes, which may injure these Parts. The Distemper is very common among the Cavalry in an Army, from their frequent and hard Riding, especially in hot Weather, as is well known to those Physicians who attend Camps; and I myself have formerly seen a Multitude of Horsemen labouring under *Fistulas* of the *Anus*. And it is not at all strange, that Abscesses of this Part, if neglected, either out of Modesty, or for any other Reason, or open'd too late, or not carefully cleansed, should degenerate into *Fistulas*. For it can scarce be otherwise, but that the corrupt Matter which remains within, must by Degrees so severely corrode and exulcerate the Fat and adjacent Intestine, and other neighbouring Parts, and affect the *Anus*, and its Region, with Sinuses and Callosities, in so surprising a manner, that all the Remedies which can be apply'd are of no Use without cutting. An illustrious Proof of this we have in the Person of *Lewis* the Fourteenth, the late King of France, who, after he had for a long time try'd all the Remedies that could be advised by the most able and experienced Physicians and Surgeons in France, was forc'd at last to have recourse to the Knife for the Cure of his *Fistula*. This being the true State of the Case, a prudent Surgeon, as soon as he shall perceive, either by outward Inspection, or introducing his Finger into the *Anus*, that his Patients, labouring under an Inflammation or Abscess of that Part, have also a Collection of Pus inwardly, will think himself oblig'd to use his Knife.

The more severe a *Fistula* is, the deeper it is situated, the greater Quantity of the Fat, of the Rectum, and especially of the Sphincter, is corrupted and corroded, the larger the Sinus, and the harder the Callus that surrounds it, the longer the Disease has affected the Parts, and the weaker, the older, and the worse the Habit of the Patient, the more difficult is the Cure, inasmuch as sometimes to render it impossible and desperate. But, what is principally to be regarded, the deeper the Aperture or Orifice of the *Fistula* is seated in the Intestine, the greater is the Danger of cutting asunder the larger Blood-vessels, whence fatal Hæmorrhages have been observed, which can neither be restrain'd by Ligature, nor by Compression or Styptics, for want of a harder Body to make Resistance, and consequently the less Hope there is of a Cure. And really if the Finger intruded into the *Anus* cannot reach the Orifice of the *Fistula*, because it is so deeply situated, the Section cannot be undertaken with Safety, for fear of injuring the larger Veins, and consequently all the Art of the Surgeon is of no Importance in this Case. It is not strange, therefore, that *Garengot* should advise a Surgeon in such a Case to desist from the Operation, rather than by inflicting a terrible Wound in cutting the large Veins, which are in this Part of the Intestine, to cast the Patient into the utmost Danger of his Life by an Hæmorrhage. For my Part, I am so far from contradicting him, that I am rather of Opinion, that it is the Part of a prudent Surgeon to promise nothing, but to be always dubious, whatever Appearances there may be of Success in the Beginning. For oftentimes it happens, that after Section there appear not only many Sinuses to the *Fistula*, but these so deeply seated, and so much Injury is done to the adjacent Bones, to the



Bladder, Urethra, Vagina, and the Womb itself, as will render the Cure extremely difficult, if not impossible. Abscesses of the *Anus*, that often recur, are to be treated as true *Fistulas*; for they cannot be cured without cutting the Intestine, and the Sphincter of the *Anus*. In Women big with Child the Cure of a *Fistula* of the *Anus* is not to be undertaken, but we must wait till they are deliver'd, and well recover'd: For *Mauriceau* observes, that Abortion and Death have been the Consequences of such an Operation. If in these *Fistulas* there be any Corrosion in the Bladder, the Urethra, the Womb, or the adjacent Bones, the Disease is usually desperate, and admits of no Remedy. The blind or secret *Fistulas* are also commonly more difficult of Cure than those which discover themselves. On the other hand, if the *Fistula* be recent, and only external, or if it be perfect, as in *Tab. 56. Fig. 1. C C*; but the Corrosion has only affected a small Part of the Intestinum Rectum, or Sphincter, with a little of the Fat; if the Disease has not spread itself to the adjacent Parts just named; if it has not penetrated deep; if the Sinuses are not many, and their Sides are but slightly hard and callous; if there be a good Habit of Body, and the Patient young, or not past the Vigour of his Age; the Cure is, for the most part, happily accomplish'd, but yet so, that more Relief is to be expected from the Knife, than from Physic. The same Judgment is to be formed of secret and internal *Fistulas*, which have their Orifices not far distant from the Extremity of the Sphincter of the *Anus*; as in *Tab. 56. Fig. 1. F G*.

Small external *Fistulas* in some Bodies are endur'd for a long time, without any remarkable Inconvenience; and when Nature is accustomed to them, they serve instead of an Issue to evacuate noxious Humours, and preserve the Patients from Distempers to which otherwise they would have been obnoxious. I know some who have liv'd under *Fistulas* to a vigorous old Age; therefore it is better oftentimes to let them alone, than undertake their Cure, as it is in the Case of old Ulcers. When the Rectum is so much corroded by an Exulceration from an external *Fistula*, or an Abscess, that, upon Examination by the Finger in the *Anus*, and the Probe in the *Fistula*, it is found to be very thin, there is no curing the Distemper, without cutting open the Intestine in that Place, together with the Sphincter, tho' the Intestine be not perforated by the Ulcer. But when the Intestine by the same Method of Trial is found to be substantial and thick, the Ulcer may often be cured without wounding or perforating the Part. So a recent *Fistula* combin'd with the Lues Venerea, or owing its Rise to it, is often cured by Mercurial Remedies without cutting.

Hitherto we have treated of the Nature and Properties of *Fistulas*. Now as to their Cure, we think it not improper, in the first place, to speak of perfect or complete *Fistulas*, and of the rest in their Order. For when we have proposed such Ways and Means as are proper for the Cure of complete *Fistulas*, it cannot be doubted but the Method to be taken with other *Fistulas* will be the more readily understood. In order to the Cure of a complete *Fistula*, the following Directions are to be observed. When the Circumstances of the Patient, as well as of the Distemper, are such as we before declar'd were necessary to give us Hopes of a Cure, the first Business of the Physician is to prepare his Patient for the Operation. Therefore it will be convenient, some Days before, to give a Purge; and, if the Strength will permit, to take away some Blood. But if the Patient be weak, these things are to be omitted, and Corroboratives are rather to be used, a strict Regimen of Diet, and such as is most convenient for the Condition of the Person affected, being, as far as is possible, all the while observed, and proper Medicines being taken to correct the Blood, and render it mild. And that the Surgeon may not be incommoded in the Section by the Excrements, nor the first Bandage be too soon taken off, it seems necessary some Hours before the Operation to evacuate the Belly by a Clyster; and immediately before the Section, let the Patient make Water, that the distended Bladder may not be in Danger of being injur'd. As to the Posture of the Patient, it must be such as before prescribed, that is, he must lie on his Belly. The Antients, as appears from *Paulus Aegineta*, placed the Patient on his Back, with his Thighs spread; but the most modern *French* Surgeons, as *Garengeot* informs us, think him in the best Posture for this Operation, when he lies on his Side, after the manner of those who take Clysters in Bed, near the Edge of the Bed, with his Breech exposed, and his Knees drawn up. But tho' the Section may be sometimes well enough performed in this Situation, yet I have known Cases where, on account of the peculiar Constitution of the *Fistula*, the Operation succeeded best in the former Posture.

The Patient being placed, as shall be thought most convenient, the next thing is to perform the Section with some fit Instrument, of which there are many invented for this Purpose. In antient Times they used a peculiar sort of Knife, almost like a Hook, in the Cure of these Diseases. This they called by a *Greek* Term *Syringotomus*, from *Syrinx*, a *Fistula*. Some of the most common Kinds of these are represented *Tab. 56.*

*Fig. 4, 5, 6, 7.* where the Letters A B represent the sharp or cutting Part; B C, the obtuse and smooth Part, or Style, which ought to be flexible; and D D, the obtuse and convex Back. Tho' these Instruments are rejected by some as useless, I have learn'd by Experience, that what is necessary to be done in these Cases, may very often, especially when the *Fistulas* are of no great Depth, be most commodiously perform'd by them. They are to be taken, greater or less, according to the Depth of the *Fistula*, and are used in the following manner: Introduce the Head C of your Syringotomus into the external *Fistula*, and with the Fore-finger of the other Hand, first anointed with Oil, and then intruded into the Rectum, direct it thro' the internal Orifice of the Sinus, and along the Intestine, till it appears out at the *Anus*. Then taking hold of both Ends, whatsoever is between the two Orifices of the *Fistula* must be cut, in which Section the Sphincter of the *Anus*, in Persons otherwise found, is always cut with Safety. Many have imagin'd, with *Albucasis*, and others of the Antients, that a Section of the Sphincter of the *Anus* must be followed with an involuntary Efflux of the Fæces, and therefore directed it to be avoided: But Experience has shewn, that it may be cut, not only once, but several times, if it be necessary, in Patients who are found in other respects, without doing any Mischief. But if this Disorder be consequent upon this Method of Cure, it is to be rather ascribed to some extraordinary Corruption and Destruction of the Sphincter by an Ulcer or Erosion. But where the internal *Fistula* lies so deep, that the Head of the Syringotomus, which passes through it, will, with Difficulty, be made to appear at the *Anus*, the Finger in the *Anus* is to be more busily, but warily employ'd in bending and directing it till it comes out at the *Anus*, when the Surgeon is to make a Section as before. But as the upper Part of the Orifice of the *Fistula* in the Intestine is generally callous, and is not cut in this Way of Cure; and yet if it be not cut, this Part of the Callus does not coalesce with the rest, but easily gives Occasion to a new Disorder; the adjacent Part of the Intestine is to be perforated with the Head of the Syringotomus, two or three Lines above the Orifice of the *Fistula*, and so be cut together with it; or, if this be not done, then soon after the Incision, or, if the Blood be an Obstacle, some Day after it, the callous Part must have an Incision made in it with the Scissars, or be quite cut off.

But it is here to be observ'd, that some Physicians are of Opinion, that the falcated Instrument with a blunt Point, represented *Tab. 26. Fig. 3.* or any other like Instrument, are far more commodious than the Syringotomus above-mentioned, for cutting a *Fistula* in the *Anus*, because the Handle is of considerable Advantage to the Surgeon in the Operation. I am indeed so far of their Opinion, from my own Experience, and that of others, that I dare pronounce it to be most handy and useful in *Fistulas* which have no great Depth; for, to say no more, I have myself, on several Occasions, used this Knife with good Success. The *French* Surgeons, that they might accomplish in the best manner possible the Cure of their King's *Fistula*, made use of some such Knife, but furnish'd with a Head or Knob at the Point, which, however, is not necessary; which, from the Person in whose Case it was us'd, acquir'd the Name of the *Royal Bistory*. However, I should not care to apply my own above-mentioned, or that Royal Incision-knife of theirs, to all *Fistulas* indiscriminately; for they are not the most convenient for those which are somewhat deeply seated. The celebrated *Bassius* therefore, Professor of Surgery at *Hall*, did very well in giving us, in his Dissertation of a *Fistula* of the *Anus*, a Description of an Incision-knife, with a very long flexible Silver Head, of which some make *Le Maire*, the Head-surgeon of *Strasbourg*, to be the Inventor (see *Tab. 56. Fig. 8.*).

Here the Break or Head C being introduc'd into the *Fistula*, in the same manner as before directed, and made to pass thro' its Sinus and the *Anus*, the intermediate Parts, between the internal and external Orifices of the *Fistula*, may sometimes with far more Convenience be cut, than by the Instruments before-mention'd. For the same Purpose may we use the Syringotomus, (*Tab. 56. Fig. 3.*) which *Garengeot* has describ'd, but delineated only in part, and which is used in the same manner as the other Syringotomi, but, by means of the Strap E E added to it, may with more Firmness be held, and the Section may the more easily be made. But I found the Inconvenience of its enormous long Beak C D, and took care to have another made, with a Beak no longer than what reached to F, by which I perform'd the Operation with more Convenience.

Some, instead of a Syringotomus and Incision-knife, introduce a flexible Silver Probe, Wire, or Style, into the external Orifice of the *Fistula*, which, after passing through the internal Orifice in the Intestine, they so bend and direct with the Fore-finger in the *Anus*, that Part of it comes out from thence (see *Tab. 56. Fig. 1. D D*). Then taking hold of the two Ends H H, of the Silver Wire, they gently draw the Flesh comprehended betwixt C C B E, and with an Incision-knife, principally a falcated one, or a convenient Pair of Scissars, divide it. This way of Operation, tho' it be very antient, and



and described by *Paulus Ægineta*, seems to *Garengot* extremely convenient, and so much the more to be preferred to others, as it prevents a Return of the Disease. For my part, I have a great Esteem for this very antient Method; but what Argument should induce this Author to think it a more effectual way to prevent the Return of the Distemper than any other, I do not as yet clearly comprehend.

Others use a flexible Probe with a Groove (see *Tab. 22. M.*, or *Tab. 56. Fig. 2.*). This is introduced into the external Orifice of the *Fistula*, and with all possible Exactness directed to the Intestinum Rectum, and reflected back through the *Anus*; after which, with a Knife, or a convenient Pair of Scissars, they cut the Flesh upon the Groove. Some modern Surgeons prefer this way of Operation to all the rest, in the Cure of those *Fistulas*, which are very deeply seated in the Intestine; but why it should be preferable to the former, I am at a Loss to conceive. But in whatever Method it be performed, it certainly requires a great deal of Skill and Caution, lest by cutting the larger Branches of the Vessels of the Rectum, as it sometimes happens in very deep *Fistulas*, we excite a dangerous or fatal Hæmorrhage. To proceed, the Wound being thus inflicted, the Blood must be first carefully wiped away; which done, the Part must be very curiously search'd, and inspected whether there be any Sinus, or Callus, or corrupted Fibres remaining. For if you find any Sinus, the Probe or Finger must be nicely introduced, and the incumbent Flesh divided with the Scissars or Knife, that the corrupted Parts may the more accurately be view'd and absterged. We are not always allow'd to accomplish the Operation at the first Essay, because of the Moroseness, Debility, or Pusillanimity of the Patient. For pusillanimous or morose Patients can by no Reasons be persuaded to admit of a farther Search and Section the first Time, as I know by Experience; and the Infirm, or such as have lost much Blood, are sometimes unable to bear them, so that we must necessarily proceed to the Dressing. Whatever internal Remains there may be of a Callus, or vitiated Fibres, must with the like Instrument, if it may safely be done, be partly cut off, partly scarify'd, or receive frequent Incisions from the Knife or Scissars. The Consequence of this will be a quick and plentiful Suppuration, and all unnatural Hardnesses, with whatever is putrid and corrupt, will with far greater Convenience be extirpated by cathartic and mundificative Applications. In the mean while, to speak my own Sentiments freely, the Wound is much more happily, as well as speedily, mundify'd and conglutinated, if the corrupted and hardened Fat be first entirely cut away by the Knife or Scissars.

When I resided at *Bremen*, where I had Patients under Cure for the Stone, *Rungius*, a Surgeon of that Place, communicated to me another Method of curing these *Fistulas*, with some peculiar Instruments, which he had invented for that Purpose, and which I never found described elsewhere. He makes use of three Instruments, the first of which is a peculiar Sort of Probe with a Groove, (*Tab. 56. Fig. 9.*) represented in a Side View, by the Letters (A B.) and made either of Iron or Silver, with a Handle, (C D) which at (E) is bent outwards in such a manner, that the Probe and Handle there form an obtuse Angle. The Groove of the Probe is shewn in a direct View (*Fig. 10.*). Another Instrument is a Canal, about a Finger's Breadth in Diameter, made also either of Iron or Silver, (*Fig. 11. A B.*) with a like Handle, and forming with it an obtuse Angle at (B), but bent a contrary way to the other, as there shewn. The Groove of this is represented in a direct View at (*Fig. 12.*). The third Instrument is a strait Knife, long, narrow, and sharp (*Fig. 13.*). When we have occasion to use these Instruments, suppose there be a *Fistula* in the Left Side of the *Anus*, as in (*Fig. 1. C C.*), the Instrument, or Pipe, (*Fig. 11. A B.*) first dipped in warm Water, and then anointed with Oil, is gently introduced into the Intestinum Rectum, and its Handle (D) held firm and steady by an Assistant. The Surgeon takes the grooved Probe (*Fig. 9.*) dipped and anointed like the other, and introduces it through the external Orifice of the *Fistula*, and carries it the whole Length of the same to its external Orifice (C C) in an oblique Direction so that the Point (A) falls upon the Hollow, or Bottom of the Pipe, (*Fig. 11.*) and there firmly fixes itself, as may be known partly by the Touch, partly by Hearing, and partly by introducing the Finger into the *Anus*. These things being rightly managed, the Surgeon takes the Handle of the Probe in his Left Hand, and with the Knife (*Fig. 13.*) cuts upon the Groove of the Probe through the *Fistula* (C C) as far as the Pipe (*Fig. 11.*), by which means he lays open the *Fistula* from its anterior Part of the Intestine, to the exterior, or *Anus*. The *Fistula* being cut after this manner, as to its Mundification, Dressings, and whatever else is to be done in order to cure it; the same general Method is to be pursued, as is specify'd below. This Method seems to be suited to *Fistulas* of considerable Depth, because the Top of a Syringotomus, or a flexible Probe, cannot without great Difficulty, and Laceration of the Intestine, and sometime, in the deeper Sort of *Fistulas*, not at

all, be inflected so as to return by the *Anus*. But the greatest Care is to be taken, that the Knife does not go out of the Canal, because the Rectum and the adjacent Parts might receive considerable Injury thereby; to avoid which, the Canal (*Fig. 11.*) is made so large. If the *Fistula* were in the Right Side of the *Anus*, the Instruments must have been applied in a contrary way, as Reason itself directs. There have been, I confess, others in former Times, who in cutting these *Fistulas* have introduced a strait Tube into the *Anus*, and afterwards, by means of a strait or hooked Knife, have opened the Sinus; and I remember, that *Ravius* in his Chirurgical Demonstrations recommends this Method of Cure. But those Instruments of *Rungius*, by their inflected Shape, render it easier for the Surgeon to direct his Knife, and consequently to avoid cutting any thing besides the Sinus of the *Fistula*; wherefore I am of Opinion, that they deserve to be preferred to any thing of that Kind known before.

If the *Fistula*, or Abscess, be only external, and recent, and seated betwixt the Fat and Skin, the Intestine and Sphincter of the *Anus* being no ways affected, the Cure is to be managed as follows: First of all, the *Fistula*, if it be not large enough, but, as it often happens, very narrow, is to be gradually enlarged by a prepared Sponge, a Piece of Gentian-root, or any other thing that is subject to swell. After this, it is to be cleansed by corroding Medicines, and then conglutinated by the general Method of treating *Fistulas*. Sometimes it is better to use the Knife immediately, and, as *Paulus Ægineta* advised, to divide the incumbent Skin by a simple Section, or to do the same when the *Fistula* cannot be sufficiently dilated by swelling Tents, and to enlarge the Incision, till the Place be laid open as it ought, and the Callus at the same time removed. After this, the *Fistula*, at the first Dressing, is to be stuffed with Lint, that it may be dilated; and if more Sinuses of the *Fistula* offer themselves to View at the first Dressing, that they may be cut. If any thing of a Callus, or of hardened or corrupted Parts, be found in the succeeding Dressings, it is to be all cut away with the Knife, or the Scissars, or to be gradually eaten off with Corrosives, particularly red precipitate Mercury. *Monnierius* asserts Ointment of the *Apothles* to be the most effectual and convenient Remedy in this Case. The vitiated Parts being thus extirpated, a digestive Ointment, mixed with Oil of Eggs, is to be apply'd to the Place, and a very accurate Bandage to be made upon it. In short, if no more secret Sinuses are to be discovered, if the Sanies thickens to a Pus, if new, firm, and sound Flesh increases, if the thin Matter decreases, and begins to alter its Colour and Smell for a better, there seems nothing wanting to make a perfect Cure, besides dressing the Part every Day with a vulnerary Balsam, Lime-water, Spirit of Wine, or dry Lint. Sometimes, as I said before, and as I have seen it, instead of an Aperture to an external *Fistula*, a small Tubercle shews itself, which, if narrowly examined, will be found to have a very small Perforation, which serves for an Outlet to the Sinus, and is more or less difficult to be discovered. In this Case, before all things I cut off the Tubercle with the Scissars, by which means the Duct or Sinus of the *Fistula* is soon discovered, in order to its enlarging, cutting, and curing, as before specify'd.

If the external *Fistula* has penetrated so deep as to affect the Sphincter of the *Anus*, or the Rectum, or, at least, has so much corroded the adjacent Parts, as to leave the Rectum very thin, we can scarce hope to make a perfect Cure, without perforating and cutting the Intestine and Sphincter, as we before advised. This Operation is performed in the best manner, by placing the Patient in the most convenient Posture; and then, after the Finger is inserted into the *Anus*, introducing a Syringotomus, especially one furnished with a Head, (*See Tab. 56. Fig. 5.*) or a Needle, (*Fig. 2.*) or a Stylus, or a Probe, not too blunt, through the external Orifice of the *Fistula* to the Bottom of it, towards the Intestinum Rectum, and perforating it where the Fore-finger meets with the Head of the Probe; but the Instrument must be so warily directed, as not to hurt any other Part of the Intestine, much less the Bladder. The Intestine being perforated, the thing to be done is, to direct and bend the introduced Instrument in so skilful a manner, that it may come out through the *Anus*, and so this imperfect *Fistula* may be cut according to the Rules before prescribed for the cutting of perfect *Fistulas*, whereby it becomes itself a perfect *Fistula*. When the *Fistula* lies near the *Anus*, but the Sinus under the Skin has not its Course so much towards the Rectum, as towards the Peninarum, or one Side of the *Anus*, the most convenient way seems to be, to cut it quite open with the Knife, or Scissars, and to mundify and heal the Wound, as before directed. In the last Place it is to be remarked, that, in cutting these *Fistulas*, especially if they lie deeper than ordinary, and the Operation cannot commodiously be performed by the Instruments mentioned, the Canal (*Tab. 56. Fig. 11.*) or one like it, may be introduced into the *Anus* after the manner above described, and the whole Sinus laid open by means of the Knife (*Fig. 13.*).

Internal,



Internal, secret, or blind Fistulas, usually make a third Species of this Disease. In these, since they appear not outwardly, but lie covered and concealed, the Method of Cure must certainly be difficult, without the Help of a Knife, in making a Wound or Perforation, that may lay open the hidden Sinuses. The most proper Place for the Incision is what is distinguished by some Tumor, Hardness, Pain, or Redness, especially if the Finger by Compression feels a subjacent Sinus, with a Collection of corrupt Matter, as in Abscesses. These things being well examined, and the Patient placed in a right Posture, as above, and firmly held by the Assistants, either an Incision is to be made in the Tumor perceived by the Fingers at the Side of the *Anus*, till we come to the Sinus; or, if we would act more cautiously, the affected Part with the Tumor within contained is, by Help of the Finger introduced into the *Anus*, to be forcibly thrust outwards; and then with a large Lancet, or a Knife fit for the Purpose, to be perforated as shall be thought necessary. For by this means a blind and imperfect *Fistula* is changed into a perfect or complete one, and so the Cure is rendered more commodious. The Wound thus made is afterwards to be enlarged with the Knife, either upon the Finger, or a grooved Probe; and, when large enough, is to be stuffed with Lint, on which must be laid Bolsters, and the Whole must be secured with a proper Bandage for the first time. When the Bandage is taken off, the Wound, if there be Occasion, is still more enlarged; and after a skilful Investigation of every Sinus, and the corrupted Parts within, the Intestine is also cut asunder, and the same Method of Cure pursued, as is above prescribed for complete *Fistulas*.

If there are none of the before-mentioned Signs, or, at least, such as are thought insufficient, but the introduced Finger, with or without the Assistance of a Speculum Ani, (*Tab. 55. Fig. 15.*) perceives a *Fistula* in the Intestinum Rectum, the Cure may be thus conducted: First of all, let a pretty big Silver Wire, or flexible Silver Style, (*Tab. 56. Fig. 14.*) bent one or two Inches, be intruded into the *Anus*, by a Finger of the Left Hand, in such a manner, that the bent Part (A) may by Degrees be introduced into the inwardly seated *Fistula* (*Fig. 1. G*) found, if need be, by Help of the Speculum Ani. This done, let the Right Hand, take hold of the Wire, or Style, by the other Extremity (B), and pull it, till the Head (A) manifests itself to the Sight or Touch, by a Tubercle excited near the *Anus* at the Letter (F). Then the Silver Wire is held with the Hand near the Extremity (B), and the Part of the Skin near the *Anus*, which was somewhat raised by drawing the Head (A) of the Wire, is dexterously cut with a Knife, till that Head appears in the Wound. Moreover, laying hold of the Part (A) now appearing out of the *Fistula*, this Wire is to be more bent, as at (D D, *Fig. 1.*), that by it the interjacent Parts may be drawn outwards, and cut asunder. But perhaps it would not be amiss, in these Sorts of blind *Fistulas*, which do not lie deep, but near the *Anus*, instead of this Silver Style, or Wire, before described, to make use of some kind or other of Syringotomus, (*Tab. 56. Fig. 3, 4, 5, 6, 7.*) that is well bent for the Discovery and cutting of them.

But in whatever manner the Incision is made, and cleansed of all Hardnesses and Impurities, the following things are to be done in order to a perfect Cure: First, the whole Wound is to be filled up, as exactly as possible, with Lint, and twisted Rags, that the Sinus of the *Fistula* may be the more commodiously enlarged and deterged. If the Hæmorrhage be excessive, let the Lint which is at first apply'd, contain some Powder, or Liquor, proper to stop the Flux. So when the *Fistula* lies deeper than ordinary, let the twisted Rags, which are pressed down to the Bottom of the Sinus, be always tied with some strong Thread, or small Cord, lest, in renewing the Bandage, any of the Lint should be left within. Let triple Bolsters be laid upon Plenty of Lint, the first or undermost narrow, but long and thick; the second a little broader; and the third, or uppermost, almost square, as in the falling down of the *Anus*. Every thing lying in just Order and Smoothness, a T Bandage, made of Linen or Cotton, is to come over all and bind them together with due Firmness and Neatness. Then let the Patient be put to Bed; and if there be a Redundance of Blood, or there was but little lost during the Operation, let him be blooded in the Arm, for fear of an Inflammation. Be not too forward in taking off the first Dressings till the second or third Day, unless some Necessity of going to Stool requires it; but when there is only a Desire, as is very often the Case, it is better to abstain a while than immediately to unloose the Bandage. But whenever the Patient feels himself under a real Necessity, it is convenient to take off the Bandage, as well for the more commodious exonerating the Belly, as to preserve the Bandage clean from the Fæces; and if any of these in going to Stool should happen to get into the *Fistula*, they must be very carefully wiped away, either with a Sponge moistened with warm Wine, or with dry Linen Rags. That the Lips of the Wound may not too soon come together, but may always be kept duly open, let the Wound be often well stuffed with fresh Lint. If any thing of a Callus, or any hard or corrupted

Particles, should be found left in the succeeding Dressings, the Ulcer is first to be well searched to the Bottom, and then the Lint is to be spread with a digestive Ointment, mixed with a little red Precipitate, or *Ægyptiacum*; and this is to be done every Day, till you find the vitiated Parts are quite extirpated from the red and sound Flesh. But observe, that for the first fourteen Days after the Operation, the utmost Caution is to be used, that no Sinus of the *Fistula* be left unsearched; nor must we, without good Reasons, forbear to use our Instruments in the Abscission, or laying open of those infected Parts, which the Moroseness or Weakness of the Patient prevented us from doing in the first Operation. That a Sinus or two of the *Fistula* have not been thoroughly searched and opened, may be known partly by the Sight, partly by introducing the Probe, but principally by the Plenty of the Matter issuing from thence, and the Colour, Smell, and Consistence of the same remaining unaltered. For as soon as the Wound looks pretty clean, and the *Fistula* begins to heal, the Matter grows less and less in Quantity, and becomes whitish, moderately thick, and less foetid. In this Case, it will be proper to promote the Growth of Flesh by Incarnatives and Balsamics, and at last, to perfect the Agglutination with dry Lint. The Diet under all these Cases must be temperate, sparing, and of Fluids; nor must the Patient, especially in the Beginning, be indulged the Use of solid Food, but only Broths, lest the frequent Desire of going to Stool should as often occasion the unloosening of the Bandage, which would be very troublesome to the Surgeon, and a very great Hinderance to Conglutination.

*Fistulas* complicated with a Caries, or with an Ulcer of the Bladder or Urethra, are very difficult, and generally impossible to be cured, as we said before. However, when the Os Ischii, or Os Coccygis, are affected with a Caries, not only the Ulcer is to be dilated, that we may have free Access to the Part, but proper Topics are to be used to take off the Caries. I have found the Essence of Round Birthwort most effectual for this Purpose. Nor must we neglect the Use of internal Mercurial Remedies, and Decoctions of the Woods, to purge and free the Blood from the Scurvy and Lues Venerea, which are often joined with this Disease, till the foul Orifice be cleansed, and the Bottom again covered with sound Flesh, and the Ulcer at last conglutinated by the same Remedies as simple Ulcers are treated with.

*Fistulas* complicated with an Ulcer of the Bladder or Urethra, are still worse than the others, and seldom admit of a Cure; yet if the external Ulcer be diligently cleansed, and plied with Balsamics, in Conjunction with the Use of the internal Medicines above-mentioned, the Defects in these Parts, if not quite desperate, if the Patient be healthy and robust in other respects, are now-and-then restored.

I am not ignorant, that there is a Multiplicity of Methods for curing a *Fistula* of the *Anus*, proposed by the Antients, as *Hippocrates*, *Celsus*, *Paulus Ægineta*, *Albucasis*, &c. such as by Ligature, hot Irons, and Corrosives, which I have on purpose omitted, because they are so far from being preferable to what I have mentioned, that upon Comparison they will be found not so convenient and proper. One thing however I must not pass over in Silence, which is, that when the Sphincter of the *Anus* is corroded, destroyed, or debilitated by some adjacent *Fistula*, the Patient, for the most part, labours under a Difficulty of retaining of the Fæces. But in Persons of a strong Constitution, and where the Sphincter is not considerably corroded, it may be cut asunder twice or thrice, or even oftener, if there be Occasion, without much Inconvenience, or Danger of the before-mentioned Infirmary. Sometimes the Age of the Patient, Imbecillity, the Severity of the Distemper, especially when the *Fistula* is very deeply seated, prevent the Operation from being undertaken. We must then endeavour to mitigate the Disease and the Pain by cleansing Injections, and Applications of lenient and balsamic Medicines. In short, the more to be pitied the Condition is of those who are forced to undergo the Operation for a severe *Fistula*, the more ridiculous is the Folly of some Frenchmen, who, though they felt nothing of a *Fistula* in the *Anus*, yet, that they might have the Reputation of going through the same Disease, and Way of Cure, with their King *Lewis* the XIVth, glorying in Misfortunes, and making an Ostentation of Misery, were earnest with the Surgeons to have the Operation of cutting for the *Fistula* performed upon them, as we are informed by *Dionis*, a very skilful French Surgeon, who, at the same time, very gravely censures this most absurd Passion in his Countrymen.

Since the right Management of a bad *Fistula* of the *Anus* is one of the most difficult Works belonging to a Surgeon, it will certainly be worth our while to propose some Cautions, that are of singular Use for the rectifying and better performing the Operation.

First then a severe *Fistula* ought to be cut in such a manner, that the external Wound may be always wider than the Bottom of the Sinus of the *Fistula*; for by so doing, this as well as other *Fistulas* are more thoroughly cleansed, and easier to be healed. For this Purpose it may even sometimes be necessary to make two Incisions across the affected Part, and then with the



the Knife, or Scissars, to cut out whatever you find hard or corrupted, especially at the Bottom of the *Fistula*; for except this be done, the *Fistula* cannot be well cured, and easily returns. This may sometimes be more conveniently and safely performed, by taking up the vitiated Parts with a Hook, or Forceps, and so cutting them off.

2. To avoid injuring the Intestine in dilating the *Fistula* with the Knife, it ought to be directed with its Edge, not towards the Intestine, but outwardly towards the *Os Ischii*.

3. If the external Orifice of the *Fistula* be not situated near the *Anus*, but in the Middle of the Buttocks, so that the Sinus is next to the Skin, and proceeds by Degrees towards the Rectum, a grooved Probe is to be introduced into the Bottom of the *Fistula*, upon which the incumbent Skin is to be dexterously cut with the Knife, or Scissars. Then the Wound is to be well stuffed and dilated with Lint, and the next Day the Nature of the *Fistula* is to be thoroughly examined; the rest of the Proceedings are to be regulated according to the Directions given before.

4. If the Intestine be exulcerated and perforated, as it commonly is in complete *Fistulas*, the Style or Head of the Probe, or Syringotomus, is to be thrust into the Intestine rather two Lines above, than through the internal Orifice of the *Fistula*, that the hard and callous Parts within it may the more commodiously be cut out. But when the Instrument passes through the internal Orifice of the *Fistula*, it will be necessary, after cutting through the Intestine and Sphincter, to cut off with the Scissars the hardened Part of the Intestine, that is next above the *Fistula*, to the Breadth of two Lines, or of a Straw.

5. If at the same time you should happen to perforate a Vessel, which discharges Plenty of Blood, your best way is to pass under it a crooked Needle and Thread, and so to tie up its Extremity. But if this cannot be effected, let a Bolster, squeezed out of some styptic Liquor, be applied to the divided Vein, and closely compressed with the Finger for half an Hour, till a Crust be induced; then filling up the Wound with Lint hard twisted, lay upon them some pretty thick Bolsters, and secure the Whole with a firm Bandage; let the Patient also observe to keep himself at Rest, and let an Attendant be ordered strongly to compress the Bandage with his Hand for some time, because sometimes it has been observed, that when the bleeding Vein has not been sufficiently compressed, the Blood has not flowed out through the Bandage and the *Anus*, but taken its Course into the Intestines, and killed the Patient.

6. When the Bandage is made, if the Patient some Hours after feels a Pain in making Urine, he must be exhorted to bear it with Patience, since it usually goes off in a short time.

7. If the *Fistula* of the *Anus* be complicated with the Lues Venerea, there is no easy nor safe Management of the *Fistula*, without first curing the other Distemper; but when this is extirpated, the *Fistula* often heals without Section.

8. *Arnoldus* invented and recommended a particular Bandage for a *Fistula* of the *Anus*, which *Garengot* has carefully described, and given the Preference to it before all others, by many Degrees. See a Description of it under the Word FASCIA.

9. Lastly, when the Wound begins to heal by Degrees, *Garengot* advises us to intrude into the *Anus* a Tent of Lint of a Finger's Bigness, and covered with Pompholyx, for the better drying of the Wound as it heals. But this is often unnecessary; for I commonly find dry Lint, when the Ulcer is well cleansed, and filled with Flesh, sufficient for this Purpose. *Heister*, P. 2. Sect. 5. Cap. 169.

It must be remark'd, that the Cure of a *Fistula* in the *Anus* is not always to be attempted; for in Bodies of a very bad Habit, an entire Interception of the habitual Discharge made by the *Fistula* would be attended with very ill Consequences, and precipitate the Patient into a Consumption, or some other Distemper more fatal than the original Disorder, of which I have seen Instances. This is the general Doctrine; but I can form no Idea of any Humours so inveterately riveted in the Constitution, but that a proper Regimen, and Medicines judiciously apply'd, together with other succedaneous Evacuations, may so far subdue, as to render the healing up a *Fistula* in the *Anus* in due time, curable, without any Prejudice.

#### Of an Abscess of the ANUS.

Since the Original of a *Fistula* of the *Anus* seems, for the most part, to be an Abscess near the *Anus*, when we come to know the Nature and Way of treating this Abscess, we shall clearly comprehend the Properties of this Sort of *Fistulas*, with the Method how to preserve ourselves from them, and to cure them. Therefore we cannot but think it worth while to bestow some Remarks upon an Abscess of the *Anus*.

The Beginning of this Abscess is twofold; for it either attacks the Patient on a sudden, or comes on him slowly and insensibly. The former is like a Boil in the Beginning, but soon after increases very fast, and in a very short time excites a Variety of violent Symptoms, and especially Pains.

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At first a sort of sharp Tubercle, scarce so big as a Bean, or Hasle-nut, with a remarkable Hardness, appears. About this Hardness, which uses to lie deep near the *Anus*, a Redness is commonly perceived. Sometimes the outward Skin has the Marks of an Erysipelas, or Ignis Sacer, while it is red without a Tubercle, but with so severe an Inflammation, that, unless it be speedily digested, in little more than four-and-twenty Hours, it turns to an Abscess, and is often attended with such excessive Pains, as to induce a Fever with Thirst, want of Sleep, Nausea, extreme Weakness, and other bad Symptoms.

The other Kind of Abscess, which is of slow Progress, is by some denominated a *Fistula* from the very Beginning, and is known, as other Abscesses, by the Pain and Tumor, but tends more slowly to Suppuration.

But in whatever manner the Abscess is generated, certain it is, that the corrupt Matter, after Suppuration, prepares itself by Degrees a Way to be discharged, and at last either perforates the Skin near the *Anus*, or the Intestine. Before this can be effected, the adjacent Fat is more or less corroded, and converted into Sanies, by the pent up acrimonious Matter, whence are formed a Variety of Sinuses, sometimes single, small, and direct, at other times large, crooked, and deep; and at last, penetrating through the external Skin, or Intestine, sooner or later, according to the different Nature or Quality of the Matter collected within; so that it is no Wonder, that *Fistulas* generated of Abscesses are some of them more severe than others.

For the Cure of an Abscess of this Kind, in the Beginning, Digestives, in the Form of a Fomentation, or Cataplasim, may be apply'd; but because the Disease is seldom cured by such means, and more Dependence is to be had on manual Operation than Medicines, recourse is to be had, in Season, to the Knife, and the following Method is to be observed: First, the Patient is to be placed in the same Position as we directed for the Operation under a *Fistula* of the *Anus*; then let the Surgeon, by pressing with his Finger near the *Anus*, or introducing it into it, very carefully search the vitiated Part, and thoroughly explore the Bottom of the Sinus of the corrupt Matter, though no outward Sign of a Suppuration as yet appears; but if only a Hardness or Tumor be perceived, the Matter is to be brought to some Degree of Ripeness, before the Instrument is used.

As in every Abscess Suppuration is to be promoted and accelerated by the Application of some emollient Cataplasim, such as that prepared of Crums of Bread with Milk and Saffron, or by a Plaister of Diachylum with the Gums; so a very necessary Caution is to be observed, which is, that the Cataplasim, or Plaister, be not left too long upon the affected Part, which may cause the Suppuration to proceed farther than it ought into the inward Parts, by which means the circumjacent Bodies being wasted and consumed, the Disease may be rendered desperate, or at least more exasperated and dangerous. Therefore we ought not to wait till the contained Matter shews some external Sign of Maturation; but the Cataplasim is to be removed after every two or three Hours, and, the Skin being wiped, we are to examine with a Finger of each Hand, one introduced into the *Anus*, and the other press'd on the external Parts, whether by Compression between the Fingers any corrupt or mature Matter can be discover'd. No Credit therefore is to be given to those who determine, that it is only proper to open an Abscess, when the malignant Matter is plainly perceived to be perfectly matured; for in such a State it would destroy the adjacent Parts.

As soon as there is any Sign of a Collection of corrupted Matter within the Tubercle, by means of the Finger introduced into the *Anus*, is to be pushed outwards towards the Skin, on the Side of the *Anus*. Then with the Incision-knife, or Lancet, let an Incision be made through the Middle of the Tubercle quite to the Receptacle of the Matter, and, raising a little the Instrument, let the Sanies, which is commonly mix'd with Blood, run into a Vessel placed underneath, and let the external Parts be gently press'd on all Sides, in order to force out the remaining Matter.

The Matter being evacuated in a Quantity sufficient to demonstrate, that the Abscess is perforated, let the Knife, or Lancet, be drawn out in such a manner as to cut the tumid Parts above the Abscess in a strait Line, and so make the Wound a little larger. This done, thrust in a Finger to the Bottom, in order to distend the Wound, and explore its Cavity, or Sinus; then above or near the Finger, cautiously introduce the Knife, or Scissars, and, carrying it near the *Anus* lengthwise, dilate the Wound to a sufficient Largeness; and, lastly, that there may be the freer Access to the Root of the Evil, the Part affected, if necessary, must have transverse Incisions made in it, and whatever shall be found within preternaturally corrupted and hard, must be cut out, in the same manner as directed for *Fistulas*.

In order to a right Treatment of this Wound, it will be necessary, according to *Garengot*, to observe the following Cautions: First of all, let the Wound be filled up, as exactly as possible, with three or four large Tents of Lint, each with a Thread



Thread or String ty'd to it, which must be distinguished from each other, either by their Places on the external Surface of the Wound, or by their Colour, left, when we come to unloose and change the Dressings, we should happen to pull out the lower Tents before the superior, and so excite a pernicious Hæmorrhage. Over these Tents must be laid plenty of Dossils of Lint, and by drawing a little, as *Garengot* advises, the Thread of the lowest Tent the Dossils, are united in close Conjunction; then placing several narrow Bolsters in such Order, that the upper Bolster may be always wider than the next under it, over all must be brought a proper Bandage, such as is described for a Fistula under the Article *FASCIA*. But, to speak my Mind freely, I do not see the Necessity of such a Multitude of Tents with their Strings in a simple Abscess, nor of so troublesome and operose a Dressing. For my part, I take care to have this sort of Abscesses, as well as others, well filled up with plenty of twisted Lint; and then applying Bolsters, make the Bandage in the most simple manner with the common Fillet. In the following Dressings I do not pull out the Lint by Force, but apply to the Ulcer a digestive Ointment, and a Plaster of Diachylum, and wait till a Suppuration coming on, they fall off of themselves; and by this Method there is no great Danger of an Hæmorrhage. After this, I deterge the Abscess, as I do other Abscesses, and at last heal it with Balsamics.

If any considerable Vein happens to be cut in the Operation, it seems necessary either to tie the Vein, or, if this cannot be done, to apply a small Bolster squeezed out of some styptic Liquor, and to compress the same with the Fingers for a while till the Blood is stopped. The Wound afterwards is to be more filled with twisted Lint, more and thicker Bolsters are to be laid on, and an Assistant is to be appointed to attend the Patient, that with his Hand he may compress that Part of the Bandage which is just over the bleeding Vessel. As for Conglutination of the Wound, though *Garengot* has said nothing about it, I perform it exactly by the same Methods as in other Abscesses, and *Fistulas* of the *Anus*. Oftentimes these Abscesses are maintain'd by a Venereal Cause, and Funguses and Calluses arise in them, so that they cannot be healed.

To conclude, it seems strange, that *Garengot*, who, like us, divided *Fistulas* of the *Anus* into *perfect* and *imperfect*, and gave the Characteristics of each, should yet, in treating of the Cure, pass over in Silence the blind and imperfect *Fistulas*, though these require a singular, and, I may say, a more artificial Management than the others, as, I think, appears in the preceding Chapter. Neither has *Garengot* said a Word about the Method of treating complicated *Fistulas* of the *Anus*, though they are not so scarce and rare to be found, as to deserve to be passed over in Silence. *Heister*, P. 2. Sect. 5. Cap. 169.

*Mr. Sharp's Observations on the FISTULA in ANO are as follows:*

If the Surgeon has the first Management of the Abscess, and there appears an external Inflammation upon one Side of the Buttock only, after having waited for the proper Maturity, let him with a Knife make an Incision the whole Length of it, and, in all Probability, even though the Bladder be affected, the Largeness of the Wound, and the proper Application of Dossils lightly pressed in, will prevent the Putrefaction of the Intestine, and make the Cavity fill up like Imposthumations of other Parts.

If the Sinus is continued to the other Buttock almost surrounding the Intestine, the whole Course of it must be dilated in like manner, since, in such spongy Cavities, a Generation of Flesh cannot be procured but by large Openings; whence also if the Skin is very thin, lying loose and flabby over the Sinus, it is absolutely necessary to cut it quite away, or the Patient will be apt to sink under the Discharge, which, in the Circumstance here described, is sometimes excessive. By this Method, which cannot be too much recommended, it is amazing how happy the Event is likely to be; whereas from neglecting it, and trusting only to a narrow Opening, if the Discharge does not destroy the Patient, at least the Matter, by being confined, corrupts the Gut, and, insinuating itself about it, forms many other Channels, which, running in various Directions, often baffle an Operator, and have been the Cause of a Fistula being so generally esteemed very difficult of Cure.

Here I have considered the Imposthumation as possessing a great Part of the Buttock; but it more frequently happens, that the Matter points with a small Extent of Inflammation on the Skin, and the Direction of the Sinus is even with the Gut: In this Case, having made a Puncture, you may with a Probe learn if it has penetrated into the Intestine by passing your Finger up it, and feeling the Probe introduced through the Wound into its Cavity, though, for the most part, it may be known by a Discharge of Matter from the *Anus*. When this is the State of the Fistula, there is no Hesitation to be made, but immediately putting one Blade of the Scissars up the Gut, and the other up the Wound, snip the whole Length of it.

This Process is as advisable, when the Intestine is not perforated, if the Sinus is narrow, and runs upon, or very near

it; for if the Abscess be tented, which is the only way of dressing it, while the external Orifice is small, as I have here supposed, it will almost certainly grow callous; so that the surest Means of Cure will be opening the Gut, that proper Applications may be laid to the Bottom of the Wound. However it should be well attended to, that some Sinuses pretty near the Intestine neither run into, nor upon it; in which Case they must be opened, according to the Course of their Penetration. There are abundance of Instances where the Intestine is so much ulcerated as to give free Issue to the Matter of the Abscess by the *Anus*; but, I believe, there are none where there is not by the Thinness and Discoloration of the Skin, or an Induration to be perceived through the Skin, some Mark of its Direction, which, if discovered, may be opened into with a Lancet, and then it becomes the same Case as if the Matter had fairly pointed.

If the Sinuses into and about the Gut are not complicated with an Induration, and you can follow their Course, the mere opening with Scissars, or a Knife guided on a Director, will sometimes suffice; but it is generally safer to cut the Piece of Flesh surrounded with these Incisions quite away, and, when it is callous, absolutely necessary, or the Callosities must be wasted afterwards by escharotic Medicines, which is a tedious and cruel Method of Cure.

When the Fistula is of long standing, and we have Choice of Time for opening it, a Dose of Rhubarb the Day before the Operation will be very convenient, as it not only will empty the Bowels, but also prove an Astringent for a while, and prevent the Mischief of removing the Dressings in order to go to Stool.

It sometimes happens, that the Orifices are so small, as not to admit the Entrance of the Scissars, in which Case Spongetents must be employ'd for their Dilatation.

In performing these Operations on the *Anus*, I do not think any Instrument so handy as the Knife and Scissars; almost all the others, that have been invented to facilitate the Work, are not only difficult to manage, but more painful to the Patient: Nor do I caution against cutting the whole Length of the Sphincter, Experience having shewn it may be done with little Danger of an Incontinence of Excrement; and, in Fact, the Muscle is so short, that it must generally be done in Dilatations of the Intestine.

The worst Species of Fistula is, that communicating with the Bladder, where the Prostate Gland is primarily concerned. This generally takes its Rise from a former Gonorrhœa, and appears externally first in the Perinæum, and afterwards increasing more towards the *Anus*, bursts out in various Orifices through the Skin, which soon becomes callous and rotten; and the Urine, passing partly thro' these Orifices, will often excite as much Pain, and of the same Kind, as a Stone in the Bladder.

Having met with none of these Instances, that I could not trace from a Clap, I have been induced, in the Trial of Cure, to practise Salivating, which assists very much in healing the Wound after the Operation. The Manner of opening this Fistula is by cutting out the callous Skin and Eminences, down as deep as the *Accelerator Urinæ*, and somewhat deeper between that Muscle and the *Erector Penis*, if the Indurations lie there. The Operation is severe, but very well rewards the Pain. It is not to be expected however, if there are many Sinuses into the Bladder, that they will all certainly be healed; but they will be reduced to one or two, almost all the Urine come by the Urethra, and the Pain be quite removed, of which Success I have had two or three remarkable Instances under my Care. See HÆMORRHOIDES.

#### CASE I. from Le Dran.

##### Of a blind internal Fistula in ANO.

Though all *Fistulas in Ano* begin by smaller or larger Abscesses, formed in the Fat covering the Rectum, yet they differ in various respects.

Authors mention blind internal *Fistulas in Ano*; but some have not described the proper Operation in that Case, and others are not sufficiently instructive in an Affair of so great an Importance. This Observation may serve as a Rule, at least, in Cases nearly parallel to this.

On the 13th of February 1726. a Man was received into the Hospital, who had evacuated Matter by the *Anus* for the Space of eighteen Months, more or less, according to the Distance of Time between his Stools. He could not inform me how it began, having never felt any remarkable Pain (It is not astonishing, that a small Abscess should be formed in the Fat near the Rectum, without creating much Pain, the Pus being capable of extending itself without meeting any Resistance). In examining the Distemper, I found an Hardness on the Left Side, within an Inch of the *Anus*, which seemed to be three Fingers Breadth deep; the Buttock appeared sound, and there was no Alteration in the *Cuticula*, or *Panniculus Adiposus*.

When I had prepared the Patient by two copious Bleedings, as he was robust, and purged him once, I performed the Operation.

Having



Having placed him with his Belly against the Side of the Bed, his Feet upon the Ground, his Legs and Thighs asunder, and there held fast by two Assistant Surgeons, I thrust an Imposthume Lancet into the Hardness which I had felt with my Finger, and thus made a complete Fistula of a blind one: Then withdrawing the Lancet, I introduced a Probe in its Place with my Left Hand, and passed it as far as the Callosity; in the Midst whereof was a Cavity, round which I could move my Probe: Then I introduced the Index of my Right Hand into the *Anus*, and discovered the Sinus that passed from the Callosity into the Rectum.

That I might leave no Source of a Fistula behind, I pierced the Intestine with my Probe a little above the *Fistula*, and, drawing it out by the *Anus*, finished the Operation in the usual manner, cutting off, or destroying the Callosities.

The Patient left the Hospital in the Beginning of *April*, perfectly cured.

#### R E M A R K.

The most preferable Method is, to pierce the Intestine above the callous Perforation; for want whereof you run a Hazard of leaving a Part of the Callosity, which may retard the Cure, or even render the Operation ineffectual.

#### C A S E II. from Le Dran.

In the Month of *April* 1725. the King having done me the Honour to nominate me Surgeon Major of the Hospital of *La Charité*, I saw a Man there, upon whom the Operation for a *Fistula in Ano* had been performed three Weeks before. The Wound seemed to be in good Condition, and lessened every Day, inasmuch that the Cicatrix seemed almost formed. Nevertheless, examining it with Attention, I observed a little sanious Pus to proceed from a small Sinus in the Wound near the Cicatrix. Startled at this, I passed my Probe into the Hole, and found a Sinus along the Intestinum Rectum, four Fingers Breadth deep, which terminated in a Cavity surrounded with Callosities, and the Intestine was denuded the whole Length of the Sinus. I began the Operation again, performing it in the usual manner, by dividing the Intestine in the whole Extent, where it was bare. I destroyed the Callosity as much as I possibly could; and to become Master of the Bottom of the Wound, I made an Incision into the Buttock, taking off the Angles. This furnished little Blood for that Instant; but an Hæmorrhage succeeded six Hours after. I went immediately, and, removing the Dressings, placed a small Compress dipped in styptic Water upon the Vessel that furnished the Blood, which I held with my Finger near half an Hour, that the Styptic might produce its Effect. The Hæmorrhage being stopped, I supported the Compress with a threaded Dossil, and that by many others, and secured the Whole with Compresses, and a proper Bandage. I did not remove the Dressing for two Days, and then the Patient was dressed according to Art, and recovered in six Weeks. I was informed, that he bled five times in the same manner after the first Operation.

#### R E M A R K S.

There are two essential Precautions in the Cure of Fistulas.

When the Operation is performed, all the Callosities must be effectually destroyed, especially those at the Bottom, because it will be too late to consume them some Days after, upon account of the external Lips approaching.

I think I ought to make a short Remark in this Place, in favour of young Students in Surgery. You must take care in the Dressing not to rub or irritate the Edge of the divided Intestine, in placing the first Dossil. For which Reason, at each Dressing, especially during the first ten or twelve Days, you must introduce your Finger to the Intestine, fixing the Edge with it; then passing the Dossil, with your Forceps, between your Finger and the sound Buttock, till it reaches the Intestine itself, withdraw your Finger, and fix the Dossil in its Place, so that half may be in the Wound, and half in the Rectum. The Neglect of this last Precaution is enough to prevent the Cure, even when the Operation has been well performed.

With regard to the Hæmorrhage, which either accompanies or follows the Operation, many Methods are proposed to stop it. I have practised all, and find none more certain, or less painful, than what I used to the Patient, who is the Subject of this Observation.

#### C A S E III.

##### Of a VENEREAL FISTULA in ANO.

The Suppuration of Venereal Tumors is different from those not proceeding from the same Cause; and the Symptoms attending them are, generally, not so active; because the Venereal Virus is more disposed to fix, than to ferment those Fluids wherewith it is confounded.

On the 27th of *April* 1725. a Servant came to me to the Hospital, who had a considerable Abscess on the Left Side of the *Anus*, which was not accompanied with Symptoms in proportion to its Magnitude. We know that large Abscesses, at the Beginning, are very troublesome to Patients by their excessive Pain, Tension, and Fever; Symptoms which subsist, and even increase more and more, till the Pus is formed.

When the Patient was sent to the Hospital, the Pus was already formed, and the Skin like Dough, wherein the Impression of my Finger remained, and it was with Difficulty that the Fluctuation was to be felt.

I opened it, and found the Rectum denuded more than three Fingers Breadth above the Verge of the *Anus*, I cut through all that Portion of the Intestine which was denuded, and cut away all the Skin that was altered and separated from the adipous Substance.

The Wound proceeded very happily, and the Lips approached, and in all Appearance a certain Cure was to be expected, when, in fifteen or twenty Days, an hard Fungus appeared at the Bottom of the Wound, which rising in the Form of a Crown, seemed to be carcinomatous. I took it off with my Bistoury, but in a few Days it pushed out again; and then I began to interrogate the Patient, and, by the Description he gave me of the Venereal Infections he had before, I knew it to be the Lues. Sudorific Ptifans and Æthiops Mineral were administered in vain; the Fungus visibly returned as I consumed it; therefore I advised him to a Salivation.

He went from the Hospital to a proper Place, where he was salivated; and when he came from thence, only a small Portion of the Wound remained to be cicatrized.

#### C A S E IV.

##### Of a FISTULOUS and VENEREAL ABSCESS.

In the Month of *September* 1725. a Patient was sent to *La Charité*, who had a gangrenous Abscess in *Ano*, which began in the same manner as that mentioned in the preceding Observation. I interrogated him as to his manner of Life; but he was discreet, and confess'd nothing that could give me the least Reason to think his Case Venereal; therefore, after he was prepared, according to Custom, I performed the Operation.

In twelve Days the Lips of the Wound grew callous, and a Fungus rose at the Bottom. To discover the Truth of what he had concealed from me, I thought I could deceive him in my Turn; and told him, that those Symptoms were certain Signs of the Lues Venerea, and that he could not be cured without taking proper Remedies to subdue the Cause of his Disease, and the Use of proper Dressings at the same time. He imagined that he should stay at the Hospital to pass through this Course, and confess'd, that he had two Chancres and a Gonorrhœa two Months before. Then I told him, that he could not stay in the Hospital; and by my Advice he went to the *Petits Maisons*, where he was salivated, and perfectly cured.

#### R E M A R K S.

Abscesses formed near the *Anus*, and that break of themselves, degenerate into Fistulas in time, and occasion Callosities: The same thing would have happened to those two, of whom I have been speaking, had I not performed the Operations that seemed necessary.

If then old Fistulas, not Venereal, are callous, as well as those that are, the Surgeon ought first to examine his Patient, that he may take his Measures accordingly.

If it be a simple Fistula, the Operation may be performed; but when you know it to be Venereal, I think it most prudent to begin by treating the Patient for the Lues. Some of the last Kind, that were recent, have been known to be cured with all the other Venereal Symptoms, and have had no farther Occasion for an Operation.

If by a methodical Course the Fistula does not heal, the Operation must be afterwards performed.

#### C A S E V.

Of a complete FISTULA in ANO, caused by an extraneous Body in the Rectum, communicated by Mr. D'Estendau, Surgeon, at the Hague.

In the Month of *December* 1728. I was called to a Gentleman of fifty Years, to heal him of an external *Fistula in Ano*, with which he had been afflicted for eight or nine Months. He was emaciated, and become almost hectic, partly from the Pain he endured, and partly from a slow Fever that never ceased; so that his Life was not long expected.

When I had probed and carefully examined it, I judged there was no Time to lose before the Operation was performed, especially, because this *Fistula*, whose external Orifice was two Inches from the *Anus* on the Right Side, could not make farther Progress, without rendering the Operation impracticable, since the Fistula already pierced the Sphincter as far as I could reach,



reach, with my Finger. I prepared my Patient immediately, and then performed the Operation, in Presence of a Doctor of Physic, and Professor of Anatomy at the *Hague*.

When I thought the Operation was finished, I thrust my Finger into the Wound, to examine whether I had sufficiently open'd the Sinuses, and scarified the Sides of the Fistula, and was much surpris'd to feel an extraneous Body at the Bottom of the Wound, which was hard, pointed, and wedged in it. This oblig'd me to make an Incision, in order to disengage it, without which it could not be extract'd; and I then drew a Scale of Bone, pointed at each End like a Lancet, two Fingers-breadth long, and a little broader and thicker than the Blade of a Penknife. It seem'd by its Hardness and Appearance to be the Scale of a Beef-bone. I inquired of the Patient, whether he remembered to have swallowed that Bone, who answer'd in the Negative; but he remembered very well, that some time before the Manifestation of the *Fistula*, he felt a Pain on a sudden like a Stab with a Dagger near the Rectum, and thought he should have fainted away by the Excess of it. It was at this Time, without Doubt, that the Bone pierc'd the Intestine, pick'd the neighbouring Parts, caus'd an Inflammation, and at last an Abscess, which degenerated into a *Fistula*.

I dress'd the Patient, and afterwards prescribed him proper Medicines, by which Means he recover'd the 30th of *January* 1729, which was the fiftieth Day after the Operation. *LeDran*.

It is proper to take Notice, with respect to the *Anus*, that many Substances of an extraordinary Nature are discharg'd by this Emiffary. Thus calculous Concretions form'd in the biliary Ducts and Cystis, sometimes pass this Way; and we have an Instance in the Philosophical Transactions of a great Number of Stones, one of which weigh'd upwards of two Ounces, which, after a great deal of Pain, came away by the *Anus*. But the Passage of the Fœtus by the *Anus* is, of all others, so extraordinary a Case, that I must not omit the following Account communicated by Mr. *Giffard* to the Royal Society.

I was sent for, about the Middle of *August* last, to a Woman, who then judg'd herself to be between three and four Months gone with Child: She had all the Symptoms preceding a Miscarriage, and, upon touching, I found the *Os Tincæ* somewhat dilated and spread, from whence I concluded a Miscarriage would ensue, and therefore order'd what I thought proper to promote it; but I was sometime after inform'd by her Husband, that altho' she before believ'd, that she had miscarry'd, yet, that she now thought herself quick, as feeling somewhat to move within her Belly, agreeable to what she had perceiv'd after former Quickenings. Thus it pass'd on for about six or seven Weeks; in which Time she grew much bigger, and the Motion more perceptible; so that there remain'd no Doubt of her being with Child. About the third of *October*, she was seiz'd with violent Pains in her Belly and Back; which daily increas'd, her Sister, by her Desire, came to me on the sixth, when I went to her, and found her labouring under very great Pains, and other Complaints like those preceding a Miscarriage or Delivery: But, to be better satisfy'd, and to strengthen my Opinion, I pass'd up two Fingers into the *Vagina*, to examine, by the Touch, whether the *Os Tincæ* began to open and spread. I there felt a large and unusual Fulness and Tension, which I judg'd to be the Body of the *Uterus* sunk low into the *Vagina*, and much distending it, and extending backwards, and pressing against the *Rectum*, so that the Excrements could not readily pass, neither could she, from its Pressure upon the Neck of the Bladder, freely make Water. I could not find the *Os Tincæ*, altho' I very carefully examin'd all about with the Ends of my Fingers; wherefore I then judg'd, that the *Fundus Uteri* must have receded from its natural Position, and be bent backwards towards the *Rectum*: In which Opinion I was more strengthen'd, from the Fulness I before observ'd, stretching backwards; and therefore concluded, that the *Os Tincæ* must be very forward: Wherefore I endeavour'd to pass my Fingers between the *Os Pubis*, and the Fulness which press'd against the upper Edge of the said Bone. This, with some Difficulty, I effected, and, at length, about two or three Inches above the said Bone, I felt the *Os Tincæ* with the Ends of my Fingers. The Cause of this Situation will more clearly appear in the Pursuit of this Account: I order'd her anodyne and quieting Medicines to relieve her Pains, which she was oblig'd to take every twelve Hours, with proper Cordials to support Nature, and sometimes Clysters. Thus Matters continu'd to the 20th of the said Month, only that for some Days before, a Water, tinged with Blood, came away, as she imagin'd, thro' the *Anus*, and which she believ'd proceeding from the Piles, with which she was sometimes troubled.

On the 20th, her Husband came to me, about Six of the Clock in the Evening, telling me that the Midwife had brought away a *Fœtus*, but could not complete her Business; whereupon I immediately went to the Midwife, who, upon my coming, told me, that a *Fœtus* was protrud'd thro' the *Anus*; and to confirm it, desired me to examine; which I did immediately, and found the *Funis Umbilicalis* hanging out about two or three Inches beyond the *Anus*, and passing up thro' the

same. I therefore pass'd my two Fore-fingers by the String into the *Anus*, when I found, about three Inches up, an Opening, as I then judg'd, into the *Uterus*, wide enough to admit the Ends of three or four Fingers, and the *Funis Umbilicalis* passing into it; from hence I was assur'd, that the *Fœtus* came out that way. I endeavour'd, with my Fingers pass'd into the Opening, to bring away the *Placenta*; but as it was very rotten, it tore away between my Fingers, so that I was forced to bring it in small Pieces, and was at last oblig'd to leave a large Part of it. The *Septum*, or Partition between the *Anus* and *Vagina*, was entirely whole, and no Perforation through it. From these Appearances I then concluded, that a Mortification must have begun in the *Uterus*, and so from its Contiguity be communicated to the *Rectum*; so that Nature, endeavouring to expel what was contained, and forcing it against this Part already mortified, and consequently ready to give way and separate upon any Pressure made against it, produced this Opening, and the Protusion of the *Fœtus* thro' it into the *Rectum*, and so on thro' the *Anus*.

There was a large Discharge of grumous Blood, and other Substances, thro' the *Anus*, which continued coming away until the 26th of the aforesaid Month, when the Woman died about Three of the Clock in the Afternoon.

I should have observ'd, that there was a Fulness and Hardness very perceptible, to be felt outwardly on the Fore-part of the Belly, some Distance below the Navel, from the Time that the *Fœtus* came away, to her Death, which, upon opening the Body, I was well assur'd, was the *Uterus* forced upwards and forwards by a *Sacculus*, which being large and distended, fill'd up the *Pelvis*, and by its Bulk press'd the *Uterus* forwards. The *Fœtus* was perfect in all its Parts, but much wast'd and shrunk, from its being some time dead, and consequently putrified.

Upon Dissection, the *Vagina*, *Uterus*, *Ligamenta Rotunda*, Left Ovary, Fallopian Tube, and *Ligamentum Latum* on that Side, together with the Hypogastric and Spermatic Vessels on the same Side, were found in a natural State. The Fallopian Tube on the Right Side we trac'd from the *Fundus Uteri* almost to the *Morus Diaboli*, where it was confus'dly united with, and open'd into the *Sacculus* hereafter to be describ'd. The Ovary on this Side, with the *Ligamentum Latum*, was dilated into a large *Sacculus*, of an irregular Form, extending itself behind the *Uterus* (to the posterior Parts of which it adher'd); and passing on towards the Left, was connect'd to that Part of the Colon that terminates in the *Rectum*. In this *Sacculus* we found great Part of the *Placenta*, and the Remains of lacerated Membranes, besides the Aperture of the Fallopian Tube mention'd before, and another about four Inches in Diameter into the Middle of the *Rectum*; that Part of the Ureter on the Right Side, which lies between the Ovary and the Kidneys, was dilated, and so was that Part of the *Rectum* between the Aperture into it, and the End of the Colon; both which were caus'd from the Contents of these Canals being obstructed in their Passage. *Phil. Trans. Abr. Vol. 8.*

ANUS, in Botany, signifies the posterior Opening of a Monopetalous Flower. This Name was originally us'd by Mr. *Vaillant*.

ANXIETAS, Anxiety, Restlessness. See *ALYSMOS*.

ANYADEL, an eternal Spring, the new World, the future Paradise. *Ruland*.

ANYDRIA, ἀνυδρία, from α, Neg. and ὕδωρ, Water. In *Hippocrates* it signifies a dry Season: Thus, ἐν καύμασιν ἀνυδρίας, *Lib. 2. Sect. 1. Epid. 4.* "In burning hot and dry Weather." Such a Season is said to be *Anydron*; as *Lib. 2. Epid. Sect. 3.* Ἰδὲ καὶ τὸ θερινὸν πᾶν ἀνυδρὲς. "The Spring and Summer were extremely dry;" and *Aphorism. 14. Lib. 3.* Βρῆσιν καὶ ἀνυδρὲς. "Attended with Northerly Winds, and dry Season."

ANYDRON, a Species of *Solanum*. *Blancard*.

ANYPERBLETOS, ἀνυπερέβλητος, from α, Neg. and ὑπερέβαλλον, to conquer, insuperable: Thus, Ἀνυπερέβλητος γὰρ ἡ φύσις τῆς βοτάνης κρεῶν, καὶ τῆς τυράχνης καὶ τῆς καλαπύλου. "For the Beef is of an insuperable Nature, and not to be digested by an ordinary Stomach." *Hippoc. de Rat. Vict. in Morb. Acut.*

ANYPEUTHYNA, ἀνυπεύθυνα, from α, Negative, and πειθύνω, obnoxious. Things for which we are not accountable. The *Anypeuthyna*, in Medicine, are Events that cannot be charg'd on the Physician, nor render him accountable for them. *Hippocrates*, ἀπολογεῖσθαι, speaking of ignorant and upstart Physicians, says, Καταχλιδύσι καλαμμεληκότες τὰ τῆς τέχνης ἀνυπεύθυνα, ἐφ' οἷς ἂν ἡμεῖς ἀγαθὸς ἀκμάζοι ὁμότεχνον καλεῖμεθα. "They live voluptuously, never troubling themselves about the *Anypeuthyna* of the Art, in which a good Physician, who deserves the Name of an Artist, shews his greatest Skill." In this Place *Anypeuthyna* seems to import those things which are out of the Limits of Reason, and cannot be accounted for.

ANYSTOS, ἀνυστος, from ἀνύω, to perfect. Ready, expert. *Hippocrates*, πειρὶ τεχνῆμ. requires, as a Qualification in Physicians, that they be ἀνυστοὶ περὶ λόγου, "of prompt Eloquence."



**AOCHLESIA**, ἀοχλησία, from α, Neg. and ὀχλέω, to disturb. A Calmness, or Quietness.

**AOCNIA**, ἀοκνία, from α, Neg. and ὀκνέω, slow, lazy. Diligence, or Alacrity. To undergo Labour with Alacrity, and eat without Satiety, are reckon'd by *Hippocrates*, *Lib. de Epid. Lib. 6. Sect. 4. T. 20.* two great Preservatives of Health.

**AONCON**, ἀογκον, from α, Neg. and ὀγκέω, a Tumor. Not tumid. *Hippocrates*, περὶ φύσ. ἀνθρώπου, advises, for the Cure of Epidemic Diseases, τὸ ὃ σῶμα ὀρεῖν ἕως ἔσται ἀογκό-  
λατον καὶ ἀδενέστατον. "To take care, that the Body be very low  
" in Flesh, and much debilitated." Some understand by ἀογκότατον σῶμα, a Body of the most solid Constitution, and least exposed to the Injuries of the Air, not of a fluxile humid Substance, but dense and compact, and so less liable to external Impressions. Not bloated.

**AORGESIA**, ἀοργησία, from α, Neg. and ὀργή, Anger. An Absence of Anger. Mildness of Temper.

**AORNOS**, ἀορνός, from α, Neg. and ὀρνις, a Bird. Spoken of Places void of Birds, on account of malignant Exhalations, as formerly the Lake *Avernus* in *Campania*. *Castellus*.

**AORTA**, ἀορτή, the great Artery proceeding from the left Ventricle of the Heart, from which all the other Arteries either mediately or immediately proceed, and by which the whole Mass of Blood is convey'd to all Parts of the Body. See **ARTERIA**.

The Aorta is subject to many Disorders, some of which have been taken Notice of under the Article **ANEURYSMA**; and the following Cases will give some Light into the Nature of others, which it is necessary to know, in order to distinguish them, and make a proper Prognostic, for they are always incurable.

Mr. *Littre* having open'd the Body of a Woman who died suddenly in the Street, and who had, till the very Moment of her Death, been vigorous, found, besides other things, the Coats which form the Trunk of the Aorta ossify'd in several Places, its interior Part full of Ulcers and fungous Excrescences, but yet without any Inflammation: The Sigmoid Valves were likewise become hard and callous.

This State of the Aorta, besides other concurring Causes, may have contributed very considerably to the sudden Death of the Patient; for the Arteries are all along in their Course furnished with fleshy Fibres, which, by their Action and Spring, continue to the Blood that Momentum or Impulse, which it at first received from the Heart; for 'tis plain, that the contractile Force of the Heart, considering its Weakness, could not, without this continued Impulse, throw the Blood so far, and that too in Canals so winding and so small; but 'tis in a particular Manner impossible, that, without this Impulse of the Arteries, the Contraction of the Heart should propel the Blood with such a Degree of Force, as to make it enter the imperceptible Orifices of the distant Veins. Thus the Arteries, and all their Ramifications, are, as it were, so many CONTINUED HEARTS, seconding and promoting the Action of the chief and principal one. Now 'tis plain, that in this Woman the Ossification and Consumption of a Part of the Substance of the Trunk of the Aorta, must have absolutely taken away its Spring, and consequently deprived the Heart of that Assistance, without which it could not carry on the Circulation of the Blood.

Mr. *Merry* says, that having open'd a Man who died suddenly, he found his Aorta so dilated, that it had begun to separate itself from the Base of the Heart, in which Case, the Circulation of the Blood must have necessarily had an immediate Stop put to it. *Hist. de l'Acad. 1710.*

Mr. *Morand* the younger, upon opening the Body of a Merchant in *Paris*, who died suddenly, after having been for some time subject to Palpitations of the Heart, was not surpris'd to find polypous Concretions formed in the Aorta, and in the Branches of the pulmonary Arteries and Veins; but was astonish'd with some other uncommon Circumstances; for, on the Left Side of the Heart, one of the two *Valvulae Mitrales* of the pulmonary Sack was transform'd into a kind of Cystis, the Bottom of which lay towards the Sack itself, and the Mouth towards the Ventricle of the Heart. This Cystis was the Valve itself, dilated to such a Degree as to be able to contain one's Thumb, thicken'd, and having small Bones in several Parts of it. The three Sigmoid Valves of the Aorta, in like manner, being considerably thicken'd, had each of them, in several Places, small Bones, very solid, irregularly ranged, and rising like so many Rocks. Now 'tis easy to conceive, that, of the Blood, which flow'd from the pulmonary Sack to enter the Left Ventricle, some Part must remain in this Cystis, preternaturally form'd; and that the other Part could not, without a great deal of Difficulty, make its Way thro' the Aorta, the Valves of which, being thicken'd and ossified, did not become flat, as they ought to have done, in order to perform their Functions duly. *Hist. de l'Acad. A. 1729.*

**AORTRA**, ἀορτή. The Lobes of the Lungs, suspended on each Side. This Sense of the Word, if not the Word itself,  
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depends upon a Criticism of *Foefius*, on a Passage in *Hippocratis Lib. 2. de Morbis*, where he reads: "Αορτὴ τῶν πνεύμων σπασμένη ἐπὶ ἀσπληνίᾳ." "If the Aortra are  
" seized with Convulsions." Here all the Copies, says *Foefius*, by the grossest of Blunders, read ἀσπληνίᾳ, instead of ἀσπληνίᾳ; for there can be no Doubt, he says, but this is the Place explained by *Galen* in his *Exegesis*, as follows: "Ασπληνίᾳ τῶν πνεύμων ἐκαστῶν." "Aortron is a Part of the  
" Lungs suspended on each Side."

**AOVARA**, *C. Biron*. Is a Fruit as large as a Hen's Egg, which grows with many others in a Cluster, inclosed in a great Pod, fasten'd to a Species of very high and prickly Palm-tree, which grows in the *East-Indies* and in *Africa*.

When the Pod is ripe, it bursts, and lets appear the Cluster of Fruit, which, being ripe, are fleshy, and of a golden yellow Colour: The *Indians* eat them; the Flesh incloses a Stone very hard and bony, as large as a Peach-stone, having at its Superficies three Holes at the Side, and two lesser near each other. The Bark of the Stone is two Lines thick; it contains a fine white Kernel, which, being chew'd, at first hath an agreeable Taste; but, at the End, it becomes of a sharp Taste, which approaches that of some Sorts of Cheese. They extract from the Kernel a sort of Palm-oil.

The Kernel of *Aouara* is astringent, and good to stop a Looseness, being eaten. *Lemery de Drogues.*

**APAGMA**, ἀπαγμα, of ἀπεί, from, and ἄγω, to draw, Abduction. See **ABDUCTIO**.

**APALLAGE**, ἀπαλλαγή, from ἀπαλλάσσω, to change. Any Alteration in general; but, in *Hippocrates*, it sometimes strictly signifies such a Change as is caused by a Deliverance from a Disease: As, for Instance, *Aph. 45. Lib. 2. Τῶν ἐπιληπτικῶν τοῖσι νέοισι ἀπαλλαγὴν, ὅτε ποιεῖται*: "Young Persons are freed  
" from an Epilepsy, &c."

**APANCHOMENOI**, ἀπαγχόμενοι, strangled. The Word is used by *Hippocrates*, *Aph. 43. Lib. 2.* and is derived from ἄγχω, to strangle.

**APANTESIS**, ἀπάνησις, from ἀπανίσταω, to meet. A Meeting. The Word occurs in *Hippocrates*, περὶ ἐνχορημίας, and is one of the Qualifications he requires in a Physician. It is taken in different Senses: *Foefius* joins it with the preceding Word ἡσυχία, and would have them to mean Affability, and easiness of Address; others, by ἀπάνησις, understand Reprehension, and a Severity in censuring and reproving the Faults of others; and some think *Hippocrates* intends by it that Qualification which puts a Physician upon his Guard against Errors, and upon teaching every Person about the Patient the Duties of their Place, and what ought to be done, or omitted, from time to time.

**APANTHISMUS**, ἀπανθισμός, a very fine, and scarce perceptible Line, properly in Painting; to which *Galen*, *de Ven. & Arter. Cap. 8.* resembles the small Ramifications of the Veins, no bigger than Hairs, or the Threads of a Spider's Web, which are called *Capillary Veins*.

**APANTHROPIAI**, ἀπανθρωπία, from ἀπὸ, from, and ἀνθρώπου, a Man. An Aversion to Company, and Love of Solitude. We find the Word in *Hippocr. Contra Prae.*

**APANTICRY**, ἀπαντικρύ. Openly, manifestly. *Hippocrates de Artic.*

**APARACHYTUM VINUM**, ἀπαράχυτον οἶνον, Wine not mixed with Sea-water. *Galen de Comp. Med. Sec. Gen. & Meth. Med.* Hence *Athalassius*, ἀθάλασσαν, (from α Negative, and θάλασσα, the Sea) is the same as *Aparachytus*.

**APARAQUA**, *Hernand.* seems to be a Species of Briony growing in *Brasil*. *Raii Hist. Plant.*

**APARASCEUASIA**, ἀπαρασκευασία, from α Negative, and παρασκευάζω, to prepare. Unpreparedness; as when the Things necessary for Bathing are unprovided. *Hippocr. de Ratione Viæ. in Morb. acut.*

**APAREGORETOS**, ἀπαρηγόρητος, from α Negative, and παρηγορέω, to comfort, mitigate. What affords no Comfort or Relief. *Hippocr. περὶ ἐνχορημίας.*

**APARINE**, Offic. Ger. 963. Emac. 1126. *Raii Hist. 1. 484. Synop. 3. 225. J. B. 3. 713. Dill. Cat. Gill. 67. Hist. Oxon. 3. 331. Phyt. Brit. 9. Merc. Bot. 1. 20. Mer. Pin. 9. Aparine vulgaris, C. B. Pin. 333. Park. Theat. 567. Boerh. Ind. A. 150. Tourn. Inst. 114. Elem. Bot. 93. Rupp. Flor. Jen. 4. Buxb. 23. CLEAVERS, or GOOSE-GRASS, *Dale.**

*Aparine*, otherwise called *Ampelocarpus*, *Omphalocarpus*, *Philanthropus*, and *Ixus*, has many slender, square, rough Branches. The Leaves lie round the Stalks in Circles, at Intervals like those of Madder. The Flowers are white, the Seed hard, white, round, and sunk in the Middle, in form of a Navel: The Herb sticks to Cloaths; and the Shepherds use it instead of a Skimmer, to take off Hairs from Milk.

The expressed Juice of the Seed, Leaves, and Stalks, drank in Wine, cures the Bites of the Phalangium [a venomous Sort of Spider] and Viper; and, instill'd into the Ears, eases the Pains thereof. The Herb, beaten up with Hog's Lat, [εὐδύ-  
γιστον, render'd, by *Herm. Barbarus*, Lees of Vinegar]  
7 F and



and the Parts anointed therewith, discusses stumous Swellings. *Dioscorides, Lib. 3. Cap. 104.*

*Pliny* adds, that the Leaves, applied, stop the Bleeding of Wounds. *Nat. Hist. Lib. 27. Cap. 5.*

Aparine is moderately drying and deterfive, and is of fine Parts. *Oribas.*

This is an annual Plant, arising yearly from Seed, having many weak square Branches, not able to support themselves, having at every Joint eight or ten long narrow Leaves, set round about the Stalks like a Star: From among these grow out smaller Branches, with the like Leaves growing on them; and on the Tops of these come forth several Flowers, small and white, of one Leaf, divided into four Parts, each of which is succeeded by two globular rough Seeds, growing close together: The Root is small and fibrous. The whole Plant is rough, and almost prickly, sticking to the Cloaths of any that come in its Way.

This Herb goes by a great many different Names, but is most commonly known by *Aparine*, *Asparine*, or *Gratterona*. It grows almost every-where in the Fields, especially about the Roots of Bushes, and Hedges. It has many rough little Twigs, which bear Leaves, and a whitish Flower, upon which the Seeds grow in Pairs. It is an Enemy to most other Herbs that grow near it, and either lays fast hold of them with its rough Leaves and Twigs, or extirpates them entirely. Upon the *Alps* the Shepherds use it, in order to cleanse the Milk of any Filth that may have fallen into it. It is of a subtle Nature, opens, expels, purifies, and dries. When boiled in Water, and often drank, it removes Obstructions of the Liver and Kidneys, cures the Dysentery, and is wonderfully beneficial in a simple Gonorrhœa. Its Juice, depurated and mixed with white Wine, may, with Success, be drank in the Beginnings of Dropsies. *Sr. Th. Mayerne, L. 3. Prax. Med. Cap. 10.* If its Juice is taken in Wine, it cures the Bites of venomous Animals: Its Juice also cures Pains of the Ears, when it is made warm, and dropp'd into them. If the Herb itself is boiled with Salt, it cures Excrecences, when applied to them by way of Plaster. If reduced to Powder, it cures Ulcers and Wounds; and, according to *Pliny*, stops Hæmorrhages. *Tragus* assures us, that its distilled Water cures the Jaundice and Dysentery: It is also very efficacious in Disorders of the Kidneys. It eases racking Pains of the Breast and Hypochondria. *Paul. Quadr. Botan. Class. 3. Fr. Joel, L. 11. Pract. Sect. 4.* commends it against a Cardialgia in Children.

APARTES, ἀπαρτής, from the *Ionic* ἀπαρτίω, for ἀπαρτάω, to be suspended. Suspended, pensile. *Hippocr. περὶ ἀρθ.*

APARTHIROSIS, ἀπαρθρωσις. See ABARTICULATION.

APARTI, APARTIOS, ἀπαρτί, ἀπαρτίως, Adverbs used by *Hippocrates, de Rat. Viſt. in Morb. acut.* and elsewhere; and expounded by *Galen, Erotian, Suidas, and Hesychius*, by ἀπερίσμεως ἢ ἀνεξῆς; that is, wholly, exactly, exquisitely, absolutely.

APARTISIS, ἀπαρτίσις, from ἀπαρτίζω, to perfect. A compacted Body, or Frame. Thus ἀπαρτίσις τῶν νεύρων, in *Hippocr. περὶ ἀρθ.* signifies the Frame or System of the Nerves.

APATEONES, ἀπατέωνες, from ἀπάτη, Deceit, a Cheat. Impostors. *Hippocr. περὶ ἀρθ.*

APATHIES, ἀπαθείς, from a Negative, and πάθος, an Affection, or Passion; such as are, or seem to be, void of human Passions. Instances you have in *Pliny, Lib. 7. Cap. 19.* 'Tis reported of *Craſſus*, says he, the Grandfather of him who was killed in *Parthia*, that he never laughed, and was therefore called *Agelaſtus*; and many were never known to weep. *Socrates*, so famous for Wisdom, always appear'd with the same Countenance, being neither more or less chearful or sad at one time than another. This Disposition of Mind is sometimes carried to a hard and inflexible Roughness and Sternness of Nature, which extinguishes the Affections of Humanity. Persons of this obdurate Temper, were, by the *Greeks*, call'd *Apathes*, many of whom they had among them; and, what is strange, most of them Professors and Teachers of Wisdom; such as *Diogenes* the Cynic, *Pyrrho*, *Heracitus*, and *Timon*, which last was arriv'd at such a Pitch as to hate all Mankind.

APATHIA, ἀπαθία. An Apathy, or such an insensible Temper as is described in the preceding Article.

APECHEMA, ἀπέχημα, from ἀπέχ, and ἦχος, a Sound. Properly a Resounding, or Repercussion of a Sound; but, in a medicinal Sense, it signifies a Contrasture. See CONTRAFISSURA.

APEIBA, *Arbor pomifera Brasiliensis fructu hispido Pomi Magnitudine, seminibus plurimis minimis.* APEIBA *Brasiliensis*, *Maregr.*

This Fruit is of no Use to the Inhabitants; but the Wood serves to make Fishing-boats, and Rafts to pass Rivers. *Ray Hist. Plant.*

APEIROI, ἀπειροί, from a Negative, and πείρα, an Experiment. Unexperienced, unaccustomed. *Hippocr. de Ratione Viſt. in Morbis acut.*

APEITHEUMENA, ἀπειθέμενα, from a Negative, and τιθέω, to be persuaded, to hearken to. Things in which the

Patient will not obey the Directions of the Physician. *Hippocr. Prorrh. 1.*

APELLA, ἀπέλλεμα. By this Name *Galen*, calls those whose Prepuce, either thro' a Disease, Section, or Contraction, is insufficient to cover the Glans.

APELLIDES. A famous Engineer, who, with *Archimedes*, lays Claim to the Invention of a Machine for launching of Ships; the Model of which the antient Surgeons imitated, in contriving a Machine for restoring Fractures and Luxations, which, because it was worked by three Cords, they called *Trispastrum Apellidis seu Archimedis*.

APEMPOLESIS, ἀπεμπολήσις, from ἀπεμπολέω, to merchandise. A Trafficking or Selling. This is the proper Signification of the Word, according to *Hesychius*. In this Sense ἀναγκαίως καθαρσίων ἀπεμπολήσις, in *Hippocrates*, περὶ εὐχρημ, must import, that, among other Qualifications he there requires in a Physician, he must be furnished with a Stock of purging Medicines, which he may sell to his Patients. Others understand ἀπεμπολήσις, in a contrary Sense, to be an Abhorrence of selling or making Profit of his Medicines; or take it for an Aversion to Trafficking in general, as unbecoming a Physician, and betraying a Desire after Lucre. This latter Interpretation will appear the more probable, if we read the Passage, as it stands in *Edit. Fol. Gen. 1657. cum Foessii Oecon.* which is thus: "Εἰδησις τῶν πρὸς εἶον χρησῶν ἢ ἀναγκαίων καθαρσίων ἀπεμπολήσις ἀδυσσεύειν." "A Knowledge of such purging Medicines as are useful and necessary in Life; an Aversion to gain by Trafficking; a Mind free from Superstition."

APEN. See AMBALAM.

APENES, ἀπηνής. Harsh, unpleasant. *Hipp. de Rat. Viſt. in Morb. acut.*

APENSALUS. A Vessel with a narrow Neck to hold Oil. *Rulandus.*

APEPSIA, ἀπεψία, from a Negative, and πέψω, to digest. Indigestion.

APEPTON, ἀπεπτον. Crude, indigested. See CRUDUM.

APER. See PORCUS.

APERIENTIA. Aperitives, or aperient Medicines.

APERISTATON, ἀπερίστατον, from a Negative, and περίστασις. Affliction, Danger. An Epithet in *Galen*, for an Ulcer that is neither troublesome nor dangerous.

APERITTOS, ἀπειρητός, from a Negative, and περιττός, redundant. An Epithet of such Aliments as generate but little Excrement, as the Flesh of wild Animals, and such as live in dry Places. The opposite Quality is called *Perittomaticos*, περιτωματικός.

APERTUS, taken for *exulceratus*, as *Apertæ Strumæ* in *Scribonius Largus, Numb. 81.* is the same with *Pliny's Strumæ exulceratæ, Lib. 30. Cap. 5.* *Rhodus in Notis ad Scrib. Largum.*

APES, Offic. Schrod. 5. 334. Aldrov. de Insect. 20. Jonſ. de Insect. 1. Mouff. Insect. 1. *Apis*, Charlt. Exer. 36. *Apis*, Mer. Pin. 196. *Apis domestica seu vulgaris alvearium*, Raii Insect. 240. BEES.

Hive Bees, as they are called, are too well known to want a Description. I shall leave the Œconomy of these industrious and useful Insects to Naturalists, whose Province it is to consider it: But must remark, that Bees have furnish'd more Materials for Fables than for Medicines. Their Salts are, however, very volatile, and highly exalted; for this Reason, when dry'd, powder'd, and taken internally, they are diuretic and diaphoretic. If this Powder is mix'd in Unguents, with which the Head is anointed, it is said to cure the Alopecia, and to contribute to the Growth of Hair upon bald Places.

All the Productions of Bees are used in Medicine, as Honey, an admirable Remedy in many Disorders, and very useful in a great Number of Official Compositions. See MEL.

Wax, a very common Ingredient in Plaisters, and in the Balsam of *Lucatellus*, a very silly Composition. See CERA.

Propolis, *Bee-bread*. See AMBRA, and PROPOLIS.

APEUTHYSMENOS, ἀπειθυσμένος, from εὐθύς, strait. The Name of the *Intestinum Rectum*, or Strait Gut. *Gorraeus.*

APHACA, Offic. Ger. Emac. 1250. Park. Theat. 1067. Raii Hist. 1. 899. Synop. 3. 320. Tourn. Inst. 399. Elem. Bot. 318. Boerh. Ind. A. 2. 45. Rupp. Flor. Jen. 211. Merc. Bot. 1. 24. Phyt. Brit. 9. Mer. Pin. 9. *Lathyrus luteus annuus foliis Convolvuli minoris*, Hill. Oxon. 2. 52. *Vicia lutea foliis Convolvuli minoris*, C. B. Pin. 345. *Vicia quæ Pitine Anguillaræ, latâ siliqua, flore luteo*, C. B. 2. 316. Chab. 148. YELLOW VETCHLING. Dale.

*Aphace* is a small Shrub that grows in plough'd Lands, and is taller than the Lentil, and bears a thin Leaf, and larger Pods than the Lentil, which contain three or four Seeds, less than Lentils.

The Seeds have an astringent Quality, by virtue of which they stop Fluxes of the Belly and Stomach, if they are roasted, or shall'd and boil'd like Lentils. *Dioscorides, Lib. 2. Cap. 178.*



I do not find any other Medicinal Virtues attributed to it by the Moderns.

APHÆRESIS, ἀφαίρεσις, from ἀφαιρέω, to take away; a removing or taking away. In a general Sense it signifies a removing whatever requires it in a Medicinal way, and is oppos'd to *Prosthesis*, πρόσθεσις, Addition. Aphæresis, in a stricter Sense, is that Part of Surgery which takes off what is superfluous.

Ἀφαίρεσις, in *Hippocrates*, περὶ ἐνδομῆς, signifies Rapaciousness; and ἀφαιρέσις τῶν αἱμάτων, *Coactæ Prænot.* are spontaneous Hemorrhages, according to *Foesius*.

APHANISMOS, ἀφανισμός, from ἀφανίζω, to make to disappear. An Evanescence.

Ἀφανίζομαι, is a Verb often used by *Hippocrates*, and, as explain'd by *Galen*, *Comment. 2. in Progn.* signifies to vanish, or disappear on a sudden.

APHASSOMENOS, ἀφασσόμενος, from ἀφάσσω, to handle. Felt, rubbed with the Fingers, handled. *Galen. apud Hippoc. in Exeg.*

It is frequently by *Hippocrates* apply'd to the Touch of the Pudenda in Women, in order to discover Disorders of those Parts. See TACTUS.

APHEBRIOC, Sulphur. *Rulandus*.

APHELIA, ἀφελεία, from ἀφελής, simple, plain. A Simplicity in teaching and practising Physic, proper to the Sect of the Methodists. *Galen. M. M. l. 4. c. 4. Castellus*.

APHELICESTEROS, ἀφελικέστερος, of ἀπὸ, from, and ἡλικία, Youth; one past the Flower of Age. *Hippocr. Lib. 7. Epid.*

APHEPSEMA, ἀρέψιμα, from ἔψω, to boil; a Decoction. *Dioscorides*.

APHESIS, ἀρεσις, from ἀρῖνμι, to remit, in *Hippocrates*, generally signifies the Remission or Solution of a Disease; but in *Epid. Lib. 3.* as *Galen* explains the Word, is to be taken for a Resolution of all the Parts of the Body.

APHILANTHROPIA, ἀφιλανθρωπία, from α Neg. and φιλανθρωπία, the Love of Mankind; the first Degree of Melancholy, when a Person hates Society, and delights in Solitude. *Castellus*.

APHLEGMANTON, ἀφλέγματον, from α Negative, and φλέγμα, Phlegm; void of Phlegm. Ἀφλέγματον πύον, is Pus free from Phlegm; the Absence of which, *Hippocrates, Prorrh. 2.* reckons among the Marks of laudable Pus.

APHODOS, ἀφοδος, the Recrements of the Aliment which pass off by Stool, or the Excretion of the same. *Gal. Com. 5. in 6. Epid. &c. Hesiychius. Foesius*.

APHONIA, ἀφωνία, from α Neg. and φωνή, a Voice; a Deprivation of Voice.

*Hippocrates* does not use to call those *Aphoni* who are deprived of Voice only; but, by way of Eminence, shews, that under this remarkable Defect, we are to include that of all spontaneous Actions. Sometimes the Patients retain their Sensation; for he says himself, Τῆς ἀφάνης αἰσθανομένης συμβαίνει γίνεσθαι, παλλάκις δὲ ἄμφω πύονθεν, ὅπερ ἀποπληξίαν ὀνομάζουσι, ἀφάτους. "Though deprived of Voice, they happen'd to retain their Sensation; but oftentimes they suffer a Deprivation of both, which is called an *Apoplexy*." *Galen. Com. ad Aph. 51. Lib. 6.*

It is usual with *Hippocrates* from this one most evident Symptom, *Aphonia*, to name and signify those who are totally deprived of voluntary Motion and Sensation, and lie like Persons in an apoplectic Fit. *Idem, in Com. ad Aph. 58. Lib. 7.*

In this Place the Manner of *Hippocrates* is very observable, who, by *Aphoni*, means those who labour under a *Carus*. Now a *Carus* properly is a sudden Deprivation of Sensation and Motion, affecting the whole Body; and it is an usual thing with *Hippocrates* to call this Disorder by the Name of this single Symptom, *Aphonia*. *Idem, Com. ad Aph. 5. Lib. 5.*

*Hippocrates, Lib. de Rat. Viñ. in Morb. acut.* says, Τὸ δὲ ἄφωνον ἐξ αἰτίας γενέσθαι φλεβῶν ἀπολήψεις ποίησι. "A Stop put to the Circulation of the Blood and Spirits causes a sudden Loss of Voice." Here *Galen* observes, that by this one common Symptom *Aphonia* are denoted the Epilepsy, Apoplexy, and Cardiacal Syncope. He adds, that an *Aphonia*, in sick Persons, is sometimes caused by a Disorder affecting the Organs of Voice or Respiration with a Resolution, or by some other Depravation of the Faculty. But *Hippocrates*, in order to make a Difference between this and the preceding *Aphonia*, adds, by way of Distinction, ἢ ὁ γυναικὸς συμβαίνει, "if they happen to a Person in Health." Thus far *Galen*. An *Aphonia* of this Nature proceeds from a Disorder of the Brain, a Refrigeration of the natural Heat, and total Cessation of the Locomotive Powers, when the Organs of Voice are in such a State of Resolution, that the Patient can neither cry, groan, nor utter any Sound. I chuse therefore to render ἀφάτος, deprived of Voice, (*voce defectus ac privatus*) rather than dumb, (*mutus*) since *Hippocrates*, περὶ σαρκῶν, and *Aristotle, Lib. 4. Hist. Anim.* attribute φωνή (Voice) to the Dumb. *Foesius*.

By the Word *Speech* we commonly understand such an Emission of articulate Sounds, as is capable of conveying the Ideas of

a Man's Mind to his Neighbour; whereas the Voice is not, properly speaking, an articulate Sound, but a certain diversified Illusion and Repercussion of the Air thrown with a kind of Force through the *Aspera Arteria*, the *Larynx*, and its Fissure called the *Glottis*, to the Cavity of the Mouth and Jaws. Thus tho' *Speech* and *Voice* are different things, yet the former cannot subsist without the latter; for when the Organs necessary for emitting Sounds, especially the *Aspera Arteria*, and its Head the *Larynx*, with their respective Cartilages, Muscles, and Nerves, or the Roof of the Mouth, are vitiated, the Power of forming Sounds, and consequently the Faculty of *Speech*, is destroy'd. Now *Galen* long ago prov'd by reiterated Experiments, that when one of the recurrent Nerves which are form'd by the *Par Vagus*, and the *Nervus Accessorius*, and reach to the *Larynx*, and, according to *Winflow*, to the Tongue itself, is cut, the Animal becomes only capable as it were of an half and unfinish'd Pronunciation; and, when both are cut, it loses at once the Power of uttering Sounds, and the Faculty of *Speech*; or, in other Words, becomes entirely dumb.

This Incapacity of emitting Sounds, and consequent Loss of *Speech*, a Case which frequently happens in Hysterical Suffocations, is by Physicians call'd *Aphonia*. But I take the Word *Aphonia* in a more restrain'd Sense, and confine it to that Incapacity of speaking or emitting articulate Sounds, which depends upon some Fault of the Tongue; in which Case Sounds may be utter'd, but the faulty Tongue cannot articulate them right, and seems, as it were, to be silenc'd by its own fruitless Struggles. There is an Affinity betwixt this Distemper and that Hesitation in speaking, which we commonly call Stammering; in which Case indeed articulate Sounds are form'd, but not distinctly enough express'd, because the Tongue is too slow, as it were, and incapable to clothe the Ideas with Language, with the same Celerity with which they are excited in the Mind.

Now since in an Aphony the Tongue is principally in Fault, and since we consider it as the Seat of the Disorder, it will not be improper to take such a View of its Structure as we think necessary, to answer our present Purpose. The Tongue then is a Muscle of all others perhaps the most moveable, by reason of its longitudinal, transverse, perpendicular, acuminate, angular, and other variously disposed Fibres; and by means of the Mylo-stylo-hyo and Genioglossi Muscles, as well as those ascrib'd to the Os Hyoides, it can move itself most nimbly and expeditiously in all possible Directions. These Muscles now mentioned derive their *Vis Motrix*, or moving Power, from the third Branch, called the lower Maxillary Branch, of the fifth Pair of Nerves, which is almost totally employ'd in producing Motion; just as the ninth Pair seems to be destin'd for the Purposes of Taste.

If by the Volubility of the Tongue, and its Capacity of moving in all Directions, Sounds form'd by the Assistance of the *Larynx* are modified into certain Letters, *Speech* is produc'd; but the more difficult the Motion of the Tongue is, the more difficult *Speech* must consequently be; and when its Mobility ceases, the Faculty of *Speech* is destroy'd with it, tho' Sounds at the same time may be clearly enough utter'd.

Since the Motion of any given Part is either diminish'd or destroy'd by the Diminution or Interception of the nervous Fluid, which should flow into its Nerves; and since the Nerves destin'd for the Motion of the Tongue arise principally from the fifth Pair; it plainly appears, that the Seat of an Aphony is to be sought for in the said Pair, and that the Influx of the nervous Fluid into that Nerve, being more or less diminish'd, is to be assign'd as its immediate Cause. In this Opinion we shall be confirm'd, if we carefully dissect human Subjects, who, during their Lives, were *aphonous*. Thus *Bonetus [in Sepulchr. Anat. L. 1. Sect. 22. Obs. 7.]* affirms, that in a Man, whose Melancholy degenerated into Madness, and who remain'd *aphonous* to his very Death, he found the Brain very dry, and the Origin of the Nerves in the same State, but much smaller than ordinary, the Tongue in the mean time remaining unaffected; and [*Obs. 20.*] he quotes a Case from *Riverius*, of a Stammering Person, in whose Brain about the Lingual Nerves a *Cystis* was found with a Hole in it, from which a Serum always drivell'd.

Whatever therefore tends to hinder the Influx of the nervous Fluid into the Nerves destin'd to the Motion of the Tongue, that very thing contributes proportionably to the bringing on an Aphony. Hence a Palsy of the Tongue, which is either antecedent or subsequent to Hemiplectic or Apoplectic Disorders, deserves our most attentive Consideration. This Disorder sometimes happens in old Men, and in languid or much weakened Constitutions. If it appears alone, 'tis generally the unwelcome Omen of an approaching Hemiplexy or Apoplexy; but if it succeed these Disorders, and is complicated with a Weakness of Memory, and a sluggish Heaviness of the mental Powers, it threatens the Return of the former Distemper. In this Case the Tongue is generally tumid, flaccid, half numb'd, less susceptible of Motion than in its natural State, its Taste impair'd; and in an Hemiplegia it is vitiated and faulty only in one Side.

That Aphony is like to terminate more happily, which proceeds from a Stagnation, or Seccession of serious Humours com-

pressing



Pressing the Nerves of the fifth Pair, which run to the Tongue ; but it is no less afflicting to the Patient, and proves sufficiently obstinate against the Means of Cure. Aphonies of this Kind happen after the striking-in of serous Pustles and Efflorescences, especially in moist and rainy Seasons. Thus we may read of Aphonies after restrained Sweats ; after Catarrhs unskilfully treated, in *Forestus, Lib. 14. Obs. 32.* after the Small-pox, &c. These Kinds of Derivations of Serum to the Lingual Nerves may also be occasioned by external Violence, Blows, or Falls. Thus *Poterius, Cent. 2. Cap. 2.* gives an Account of an *Aphony* occasion'd by a Fall from an Eminence.

There also arises an *Aphony* from too great a Congestion of Blood in the Fauces and Tongue ; but this Species of the Disorder generally uses to quit the Patient immediately, upon lessening the Quantity of Humours. An Instance of this Degree of the Disorder's being cur'd by a subsequent Hæmorrhage from the Nose, may be seen in the *Acta Acad. Natur. Curios.* This Disorder likewise ensues after letting Blood in the *Vena Ranina*, if the Operation is perform'd in plethoric Habits, without previous Venesection in the Foot. From cutting these Veins, without this necessary Caution, Experience tells us, that very terrible Inflammations of the Fauces proceed ; but more especially from this Cause I have known *Aphonies* brought on Women whose Menstrual Discharges were defective, or who labour'd under the Hysteric Passion, the Spasms of the Lower Belly concurring to foment the Disease, and force the vital Humours to the superior Parts. Hence we frequently observe, that Girls at the Age of Puberty, or when they begin to observe the first Eruptions of their Menfes, are often subject to this Disorder. In this Case, the Distemper uses to be accompanied with a Swelling and Redness of the Face and Eyes, a turgid State of the Vessels, a vehement Pulsation of the Arteries, and a difficult Deglutition.

An *Aphony* proceeding from Worms lodg'd in the Cavities of the Stomach and Intestines deserves our Consideration, because it occurs pretty frequently. This Species of the Disease seizes the Patient suddenly, but ceases to rage when the Worms, its remote and secondary Cause, are dislodg'd. It is known by antecedent or concomitant Gripes of the Belly, or by the other diagnostic Symptoms of Worms. Its direct and immediate Cause is the spasmodic Contraction of the nervous Parts of the Lower Belly, by which the vital Juices are with a strong Impetus driven to the Tongue and Fauces, where they stagnate, and compress the Nerves. I myself have not only seen many Cases of this Nature, but also cur'd them with Success : Nor do we want Cases of this Kind occurring in the Practice of other Physicians ; see *Act. Acad. Natur. Curios. Dec. 3. Ann. 3. Obs. 147. Vol. 2. Obs. 62.* And *Ibid. Obs. 160.* there is a Case of a *periodical Aphony*, which seiz'd the Patient as often as the Worms excited Gripes, and ceased as soon as these Gripes went off.

There are also other Causes, which, when they occasionally take Place, contribute very much to an *Aphony*, such as the wanton Abuse of spirituous Liquors, and frequent Surfeits. Thus *Hippocrates, Sect. 5. Aph. 5.* mentions an *Aphony* proceeding from Drunkenness : To the Causes of this Disease belong also excessive Fear and Refrigeration, especially of the inferior Parts ; and all these exert their Influences the more powerfully, if they happen at a Time when any of the natural Discharges of Blood is carrying on. Nor ought I on this Occasion to forget a rainy Season, and residing in damp and marshy Places, Circumstances which contribute not a little to this Disorder, especially in phlegmatic Constitutions, and such as are subject to Catarrhs. The Prognostics of *Aphonies* vary, according to the respective Causes from which they proceed. That Species which owes its Origin to Worms, Hysteric Disorders, or a difficult Eruption of the Menfes, is easily cur'd ; whereas that Kind of it which proceeds from a Palsy of the Tongue, either entirely frustrates the Use of all Means, or being cur'd, easily returns, and proves the direful Harbinger of a more terrible Disorder of the Brain.

#### The Cure.

The first Intention of Cure, in an *Aphony*, is to remove the Causes compressing the Lingual Nerves, and thereby hindering the Influx of the nervous Fluid into them. The second is to strengthen and corroborate the weakened Parts : But as these Causes differ very widely from one another, so he that will take the Trouble of thinking, must plainly perceive, that they call for proportionably different Methods of Treatment ; and 'tis no hard Matter for any one to see, that an *Aphony*, produced by a Cause that lies latent and remote in the Cavity of the Cranium, must with incredible Difficulty admit of a Cure.

That Species of *Aphony* therefore which proceeds from a true Palsy of the Tongue, calls for a Discussion and Evacuation of the Serum, which compresses the Nerves and Brain : The Cure is therefore to be attempted by Venesection, pretty sharp Clysters, Diuretics, Sternutatories, &c. but especially nervous and balsamic Medicines are to take place, and be apply'd even ex-

ternally to the Tongue itself. For this Purpose the following are recommended :

Strong Waters of Lily of the Valley, Cowslips, Rosemary, Mother of Thyme, of Ants, Essence of Amber, and of Peruvian Balsam, Oil of Cinnamon, and of Clove-gilliflowers, and a few Drops of my *Balsamum Vitæ*, taken in Sugar, and kept under the Tongue. Internally also the same *Balsamum Vitæ*, mix'd with three Parts of the vinous Spirit of Sal Ammoniac, and two Parts of the acrid Tincture of Antimony, may be taken with great Success, twice or thrice a Day ; and the Dose may be thirty Drops. Neither will it be improper to apply a gentle Vescicatory to the Nape of the Neck.

If Suppressions of Sweat, or a Stop put to the usual Excretion in case of a Catarrh, have contributed to the Disorder, nothing can be used with greater Advantage and Efficacy, than Diaphoretics and Diuretics, duly and skilfully prescribed ; for immediately upon the Diaphoresis being restor'd, the Faculty of Speech returns. Infusions to be drank by way of Tea, a mild Regimen, succinated Spirit of Hartshorn, acrid Tincture of Antimony, and Essence of Amber, especially if they be mixed with Balsam of Peru, or my *Balsamum Vitæ*, are also most sovereign and efficacious Remedies in this Case.

An *Aphony* sometimes seizes the Patient under a mercurial Salivation, that is, when the serous and salival Humours flow to the Tongue and Fauces in too great a Quantity. In this Case the Intention of Cure consists in making a Derivation and Evacuation of those Humours from the Head. This End is most effectually answered by diaphoretic Decoctions drank warm ; by Laxatives, and especially by cephalic Pills of a pretty sharp and stimulating Quality, a proper Regimen in the mean time being enter'd into, and carefully persisted in.

In an *Aphony* which remains after the Shocks of an Hemiplexy or Apoplexy, and has all the Appearances of being sufficiently obstinate, I have observed remarkable Effects produced by applying to the Nape of the Neck Plaisters prepared of Turpentine, or Pitch, and the Gums Caranna and Mastich ; for other Remedies, how rich and generous soever, generally come short of Expectation, and disappoint our Hopes in this Case.

If an *Aphony* proceeds from too great a Congestion of Blood in the Head, the whole Cure consists almost in letting Blood in proper Places, and in due Quantities. The Quantity taken from the Patient must be large, and drawn just as Circumstances require, either from the Arm, the Feet, or sometimes the Veins under the Tongue. Cupping and Scarification are also proper. The Feet must also be washed, in order to procure a Derivation of the Humours to the inferior Parts. Nitrous antispasmodic Medicines are also to be used internally, because in Cases of this Nature the Spasms of the lower Parts are generally complicated with some other Disorders : For this Reason temperating Powders, mixt with Nitre and Cinnabar, or my anodyne Liquor, mixt with Essence of Castor, are highly serviceable in this Case.

Tho' Bleeding is a Circumstance of great Importance and Efficacy in the present Case, yet it is not to be used indiscriminately and at random ; for in old Men, languid Constitutions, and Patients of phlegmatic Habits, or those whose Strength is exhausted, it does more Harm than Good ; and if celebrated in a larger Quantity than is sufficient to answer the End, is so far from guarding against it, that it even excites and brings it on. Phlebotomy then should rather take place where the Pulse is quick and large, and the Face red and turgid with Blood. And even in this Case it is not to be used, till the Strictures of the lower Parts be relax'd, and mitigated by previous Clysters, Frictions, and bathing of the Feet. Plethoric People before Bleeding should carefully abstain both from the internal and external Use of the hotter, more spirituous, and nervous Medicines ; because they stimulate the Humours more, and hurry on their Congestion to the Fauces.

If spasmodic Constrictions of the Fauces and Tongue have produced an *Aphony*, as happens in Hysteric and Hypochondriac Paroxysms, which are attended with Difficulty of Deglutition, external Paregorics are of more Service than internal Medicines : For this Purpose a little Castor, or Nutmeg, or Theriaca, or Sage, may be held under the Tongue ; or a few Drops of the *Balsamum Vitæ*, mixt with some anodyne Liquor, may be pour'd upon the Tongue. Besides bathing the Feet, carminative Clysters, emollient Fomentations and Baths, are highly serviceable in this Case.

Lastly, That *Aphony* which is produced by Worms lodged in the Cavities of the Intestines and Stomach, is easily cured by Anthelmintic Medicines, and such as relax and mitigate the Strictures of the Intestines ; for when these are at an End, the Power of speaking returns, but is again frequently lost, till the Worms, the remote Cause of the Disorder, are dislodg'd : For this Reason, when the Spasms are gone, the Physician is to endeavour, by proper Remedies, to dislodge these troublesome Animals, as effectually as he possibly can.



# A P H

## C A S E I.

A Girl of a flabby Habit of Body, a florid Countenance, full of Blood and Humours, and eighteen Years old, happened, after her Menfes had broken out, in a Journey she was taking, to expose herself to the Cold: Being carried home again, she was seized with a heavy Pain of her Head, and the Vessels of her Face became turgid and red. She pass'd the Night in a very uneasy manner; and in the Morning felt herself entirely depriv'd of a Power of speaking. This Disorder lasted for four Days; during which Time she had neither an Appetite for Meat, nor an Inclination for Drink. Her Sleep was disturb'd, but she had the Use of her Reason and Senses; and a Warmth was diffus'd over the Extremities of her Body. Her Physician, finding her costive, immediately prescribed a Clyster, and ordered about three Ounces of Blood to be taken from her Ankle; but her *Aphony*, notwithstanding these Means, became still stronger and stronger. Upon which I was call'd; and finding her Pulse still quick and large, I ordered a Vein to be again opened, and seven Ounces of Blood to be taken from her; and as her Pulse was as yet sufficiently strong, I prescribed her thirty Drops of a Mixture of Essence of Castor with Spirit of Sal Ammoniac, and some mineral anodyne Liquor, to be taken every fourth Hour in Water of Lilies of the Valley. Soon after a Sweat broke out over all her Body, the Swelling of her Face abated, her Sleep became sound and undisturbed; and, by persisting in the Use of this Medicine for twenty-four Hours, her Faculty of Speech was wholly restored to her.

## C A S E II.

This Case is an Illustration of the former: A lean Girl, of nine Years of Age, happening to have her Body, but more especially her Feet, exposed to the Cold, in the Night-time, was seized in the Morning with a Difficulty of Speech, and a Swelling of her Tongue. Cephalic and nervous Medicines were forthwith prescribed, both internally and externally, but they afforded no Relief. Upon this, I, being call'd, and finding her Feet still cold, ordered them to be rubb'd and bath'd twice a Day in common Water, with a Mixture of Bran in it: But this Expedient frustrating my Hopes, I ordered Cupping and Scarification in both her Arms; some Hours after which she felt great Relief; and by washing her Head with Wine, in which Thyme, Savory, Mother of Thyme, and Marjoram, had been infused, she was cured of her *Aphony*, and restored to perfect Health.

### REFLECTION on both CASES.

In both these Cases the *Aphonies* were produced by the Congestion of Blood in the Head, and this Congestion was excited by the Refrigeration of the inferior Parts of the Body: But the Danger was greater in the former than in the latter Case, because in it the Menstrual Discharge was stopt at the same time. In the Beginnings of Disorders of this Nature, specific, cephalic, volatile and nervous Medicines do more Harm than Good, since they heat the Blood, and put it into a strong Commotion; such Remedies are rather to be prescribed as derive the Congestion from the Head, and mitigate or relax the Strictures of the inferior Parts, the principal of which are bathing of the Feet, and Venesection. If the Feet are cold, I never order bathing them till they are render'd a little warm by proper Frictions. I have often with great Success prescribed Bleeding at the Ankles for Women whose monthly Evacuations have appeared, but are afterwards obstructed; but in the younger Sort, who have as yet had no Eruption of their Menfes, Cupping and Scarification in the Arms is more proper, as also in Boys and Infants. 'Tis worth while to give this Caution, that a sufficient Quantity of Blood be taken away, since, if it is too small, it does more Harm than Good: For this Reason I judg'd it proper to repeat it in the former of the above-cited Cases. If, after all, the Vehemence of the Pulse continues, antispasmodic and gentle nervous Medicines are properly and successfully used.

## C A S E III.

Some time ago a Gentleman of singular Merit, and one who deserves well of our Profession, ask'd my Advice with regard to a Disorder of a very particular Nature, an Account of which must necessarily be agreeable to the Curious. A Boy of eleven Years of Age, born of honest Parents, and who had till then enjoy'd an uninterrupted State of Health, not having ever in his Lifetime been sensible of the least Defect or Faultiness in his Speech, became all of a sudden so far depriv'd of it, that he could not pronounce any one Sound articulately, except the Word *Mama*, which at the same time he utter'd with a kind of Difficulty, and with a sunk and faltering Voice. Painful spasmodic Tensions seiz'd him also in several Parts, which, drawing the whole Neck and Back into *Convulsion*, induc'd on those Parts an uncommon Torpor, and Inability to move and bend themselves as they did in their natural State.

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The Physician, concluding that so terrible a Disorder must necessarily have Worms for its Cause, prescribed, what in other Disorders of that Nature would have proved effectual, that is, various laxative, corroborative, antispasmodic, and absorbent Medicines; and gain'd his End so far, that having by these Means procured a Discharge of fifteen Worms by Stool, the Patient's Appetite, together with some Degree of his Strength, returned; his Sleep became sounder, and his Belly was easy; but his terrible Impediment of Speech remain'd with him for five Weeks, without ever so much as taking a favourable Turn. I therefore, judging it proper to procure a more effectual Discharge of the Worms, prescribed the following Pills, whose Efficacy against Worms I have often found very great, and of which I prescribed him seven twice a Week; especially about the Changes of the Moon, interposing a Powder, consisting of

Fifteen Grains of the Sal Catharticum Amarum; purified Nitre, and Coral, each six Grains.

The Pills themselves were made thus:

Take *Afa-fetida*, the best Myrrh, Extract of Tansy, Rhubarb, Aloes rofated, and Mercurius Dulcis, each one Dram; Extract of Saffron, six Grains: Mix, and make up, according to Art, with Essence of Castor. Twenty Pills are to be made out of each Scruple.

Lastly, That we might also afford some Assistance by external Applications, by restoring the Parts too much weakened by the Spasms, we now-and-then ordered an Epithem, made of

Four Ounces of the Aqua Anhaltina; half an Ounce of my Balsam of Life; and two Drams of Peruvian Balsam.

By the daily Use of these Medicines for some time, his Speech return'd gradually more and more to him.

### REFLECTION.

Many and terrible are the Disorders brought on the nervous System by Worms, the Cause of which, I am inclined to think, consists, not so much in the Corrosion of the nervous Coats of the Intestines, as in the acrid and caustic Exhalations rising from the Bodies and Excrements of the Worms, in which they, as well as all other Insects, abound. Numberless almost are the Medicines thought proper for dislodging these Animals so hurtful to the Constitution; but excepting Mercurius Dulcis, mixt with some Purgative, such as Resin of Jalap, or Diagrydium sulphurated, I have found this Intention more safely or effectually answered by no Medicine, than by *Afa-fetida*, Tansy, Garlick, Wormseed, Camphire, and Hops, which operate upon these Animals rather by their Exhalations being offensive to them, than in any other way.

## C A S E IV.

About a Year ago, a Boy of eight Years of Age was seized with the Small-pox, which appearing very thin, and stopping immediately after their Eruption, the Patient by that means became subject to several Disorders, and was in a particular Manner troubled with frequent Desquellations of Serum, which used to bring on a Cough, Hoarseness, and Coryza. These Symptoms were indeed often allay'd by proper Remedies; but when they came at last to be accompany'd with a great Swelling and Hardness of the Belly, his Physician ordered him two Vomits, the second very soon after the first, the Effects of which were very unlucky; for these forc'd Vomitings were soon after succeeded by spontaneous ones, which being accompanied with a Diarrhoea, miserably rack'd the Patient for eight or ten Days. These Symptoms being mitigated, a sudden Dimness of Sight, and such an Immobility of Tongue, and Difficulty of Speech, seiz'd the Patient, that he could not, with all his Efforts, utter one single Word. Besides these Symptoms, a large Swelling appeared on his Head, and a vehement Trembling and Weariness seiz'd his Joints; which Symptoms increased at last to such a Degree, that his Strength becoming always weaker and weaker, he at last expired in a calm and gentle Manner.

### REFLECTION.

There is hardly any Disease which leaves with Children so fatal, so various, and so lasting Symptoms as a variolous Fever, if either the Eruption or Suppuration of the Pox does not go duly on, or if the Mass of Humours is not reduced to a good State and Temper, when the Distemper is over, by a proper Regimen, and Medicines which purify the Blood. Hence it frequently occurs in the Practice of Physic, that after the Small-pox or Measles we find Diseases of the Breast arising from the Injuries sustain'd by the Lungs, Swellings and Indurations of the Abdomen, together with Fluxes arising from



the Viscera being affected; and Atrophies of the other Parts produced by scirrhous Tumors of the Meseraic Glands: But nothing is either more absurd, or unsafe, than, without any indicating Symptom, to exhibit an Emetic, by which, in our Patient, the Flux was not only increased, but also the impure Serum, being, by means of the terrible Spasms, propell'd with an Impetus to the Brain, produced, first a Palsy of the Optic, and then of the Sublingual Nerves, the Consequence of which was Death. I could not forbear lying down this Case, that People might become sensible what terrible Consequences ensue the unskilful Administration of Medicines.

## CASE V.

A Man of eighty Years of Age, of a dry Habit of Body, and accustomed to let Blood at least thrice a Year, that is, in the Months *February*, *June*, and *October*, enjoy'd an excellent State both of Body and Mind. But one Season, which was hotter than ordinary, he, by the Advice of a certain Physician, neglected his accusom'd Evacuations; upon which, being suddenly seiz'd with an apoplectic Fit, the Pulsation of his Arteries being strong, his Eyes becoming red, and his whole Body excessively hot, he lost all his Senses, and an Ability of Speech. Whilst the Patient was in this Situation, I, being call'd, first order'd a Vein to be open'd in his Arm, and emollient Clysters to be exhibited; and, without neglecting other Medicines, apply'd my *Balsamum Vitæ* to his Mouth and Nose. By these means, accompany'd with the Blessing of God, we gain'd our End so far, that the Violence of the Disease and its Symptoms abating, the Patient gradually recover'd, only the Hesitation of his Tongue remained pretty long with him, which we nevertheless happily cured, by frequently washing his Mouth with Wine, into which some Drops of my *Balsamum Vitæ* had been infill'd.

## REFLECTION.

How efficacious and excellent a thing letting Blood is, both for preventing and carrying off most Diseases, to which old Men are subject, may be learnt from this Observation: And, indeed, a very good Reason may be assign'd why it should be so; for in old People, especially such as have a good Stomach, and an entire Appetite, the superfluous Blood is not so quickly consum'd as in young People, by reason of their Indolence, and want of due Exercise; and if Nature does not free herself of this Burden, 'tis necessary it should be drawn away by Art; which is most conveniently done by Venesection. His Physician then, without any good Reason, forbid his being let Blood during the Dog-days, which at that particular Season was so much the more necessary, because the too great Quantity of Blood, by having the Degree of its *Expansion* and *Orgasm* augmented, might easily stop here-and-there in the more noble Parts, and bring on very terrible Disorders. Nor is it to be doubted but in the Case now under Consideration, this gentle apoplectic Fit, with the Difficulty of Speech, were produced by such a Stagnation of the Blood in the Veins of the Head. For this Reason, the first Step I took towards the Cure, was to order Venesection in the Arm, which produc'd immediate Relief to the Patient; then I order'd emollient Clysters to be exhibited, and, for allwaging the violent Motion of the Blood, recommended some Doses of the Powder of Nitre, to be taken at proper Intervals, desiring the Patient, at the same time, to drink an Infusion by way of Tea made of the Herbs of Bawm, Betony, and *Cardus Benedictus*, Flowers of Sage and Rosemary; together with a few Drops of the Oil of Mace, dropp'd upon a little Sugar. From this Case we have a convincing Proof, that an *Aphony* is not more frequently the Concomitant of any Disease, than of an Apoplexy; since the former often remains some time, or is easily generated after the latter, if the Serum seern'd from the Blood stagnating in the Head should enter the Pores of the Brain, and, by relaxing the Roots of the Nerves, deaden or weaken the Sensation and Motion of the Parts to which the Nerves distribute themselves. *Frederic Hoffman, Med. Rational. Syst.*

## CASE VI.

A Girl of twenty or twenty-two Years of Age, and of a good Constitution, after a Stop put to an intermitting Fever by the usual Remedies, was seized with an Extinction of Voice, which without Interruption remained with her for a Year and an half. The Remedies used in Cases of that Nature, afforded her no Relief, only when she us'd a Semicupium, [See *SEMICUPIMUM*] she sometimes recover'd her Speech whilst she was in the Water; but her Voice was, even at that Time, very hoarse. 'Tis also very remarkable, that she could speak during the hot Fit, whenever her Fever return'd. Mr. *Lemery*, to whom the Case was related, prescribed such Remedies as upon physical Reasoning he judged most proper to remove it. These,

indeed, freed the Patient from some Inconveniencies, which remain'd after her Fever, but had not the least Influence upon her Extinction of Voice. Upon which, Mr. *Lemery* prescribed a Medicine almost by Chance, which produced very astonishing Effects. The Medicine itself was no more than some vulnerary Herbs infused by way of Tea. After she had taken it the first time, her Voice returned for half an Hour, and then was extinguish'd afresh. But by continuing the Use of this Infusion of Vulneraries either hot or cold, she gradually recover'd her Voice so far, that she only lost it towards Night, especially if she happen'd to take the fresh Air. But at last, even in that Case, the Symptom was remov'd by taking two Spoonfuls of her vulnerary Infusion, which produced so instantaneous an Effect, that she had scarce sooner taken it, than she was able to speak. It was by some thought, that in this Case, the Efficacy of Vulneraries was no greater than that of warm Water; but their Mistake was sufficiently prov'd by the best of Arguments: I mean, Fact and Experience; for the Patient frequently drank warm Water, without receiving the least Advantage from it. Decoctions of Herbs abounding with Acids, and even Coffee, Chocolate, Sallads, crude Fruits, Fish, Soup Maigre, and too great an Interval between her Meals, deprived her of her Voice; whereas Fleshes, Milk and Wine, produced no such Effect. She always carries about with her a Bottle of her vulnerary Infusion, and for that Reason uses, in a jocular manner, to say, *That she has her Voice in her Pocket.* *Hist. de l'Acad. 1700.*

## CASE VII.

A Girl of twenty-four Years of Age has, ever since she was Sixteen, been afflicted with a Loss of Speech, during her monthly Evacuations, which generally last for two or three Days, on which occasion she makes frequent use of a Pisan of the *Gramen Caninum*, (see *AGROSTIS*) and wild Poppy. This Liquor moistens her Breast, which indeed calls aloud for a Relief of that Kind, but does not restore her Voice, which only seems of its own accord to return when her Menfes are over. At the very Time she was under these Discharges, she happen'd to have her Arm broken, and to meet with a severe Affliction. These two Accidents put a Stop to her usual Evacuations, and brought on violent Suffocations and Vapours. These Symptoms were removed by repeated Venesections in the Arms and Legs, by Emetics, and some other Medicines; but at the same time she was seiz'd with a continued Depression of Voice, and that to such a Degree, that she could scarce be heard when People apply'd their Ears as near as possible to her Lips; and if she spoke but a very little, even in that faint and languid manner, she was so fatigued, that she was oblig'd to give it over. She felt a considerable Weight about the Region of her Stomach, and could not perform the least Motion without almost an entire Loss of Respiration. Her monthly Evacuations were at this time pretty regular, but all her other Disorders were redoubled: Add to this, that she look'd tolerably well, her Appetite was keen, and all her other Functions duly carry'd on.

In this Condition she remain'd for three Months, in spite of all the Medicines that could possibly be thought of for her Relief. At last, Mr. *Lemery*, calling to mind a Disorder of the like Nature cur'd by his late Father, by means of Vulneraries taken in an Infusion, order'd the same for the Patient, of which when she had taken one Draught, her Voice not only returned, but was as strong and vigorous as it had been before the Approach of her Distemper. Her Oppression, together with the Difficulty attending her several Actions and Motions, was entirely removed. But a still more surprising Circumstance accompany'd this sudden Cure; for all of a sudden she felt the Weight about the Region of her Stomach fall down to her Navel, where it remain'd. But as she soon after chang'd the Place of her Residence, Mr. *Lemery* saw her no more, and consequently could trace the History of her Disorder no farther. *Hist. de l'Acad. 1719.*

APHORETOS, ἀφορητός, from *a* Neg. and *φέρω*, to bear. Intolerable. *Hippoc. περί κελύων.* In the same Sense may ἀπορητός ἢ νοῦστος, *Lib. 1. περί γυναικ.* be taken as ἀπορητός, and as oppos'd to *εὐφροσύνη*.

APHORISMUS, ἀφορισμός, from ἀπορίζω, to separate, distinguish. An Aphorism. It is defined by *Galen*, *Com. 1. in Aph. 1.* to be a Sentence comprehending all the Properties of a thing in very few Words.

APHORME, ἀφορμή, of *ἀπό*, from, and *ὁρμή*, a Motive. An Occasion, or external manifest Cause, of any Event. *Galen*, *Com. 3. in Lib. 6. Epid.* says, "That *Hippocrates*, and "almost all the Antients, used to call *Aphorme* the Matter of "any thing that was the original Motive to any consequent "Action, whether it were Money, or any other outward "Possession, or Faculty, or Place, or Faith, or Practice, or "Reason, or, in short, whatever it might be." *Hippocrates* calls *Aphorme* whatever gave Occasion or Rise to a Disease by a sort of Metaphor; for *Aphorme*, in almost all other Authors, has relation to human Actions, and their Motives. *Foefius.*

APHRAINON,



APHRAINON, ἀφραίνων, from α, Neg. and φρενίω, to be wise. One who has lost the Use of Reason. *Erotian. apud Hippoc.*

APHRODES, ἀφρόδης, from ἀφρός, Froth. Spumous, or frothy. The Word is apply'd by *Hippocrates* to the Blood, and to the Excrements.

APHRODISIA, APHRODISIASMUS, ἀφροδίσια, ἀφροδισιασμός, from Ἀφροδίτη, *Venus*. Venereal Commerce. *Hippoc. Aph. 30. Sect. 6. Castellus.*

APHRODISIA, in *Johns.* and *Rulandus*, is the Venereal Age, or Age of Puberty.

APHRODISIASTICON CLIDION. A Troche so call'd by *Galen*, and recommended for spitting of Blood, the Colic, Dysentery, and Fluxes of the Stomach. It is thus prepared :

Take of the Flowers of the Pomgranate-tree, *Egyptian Thorn*, Balaustines, Juice of Hypocistis, Acacia, each six Drams fifteen Grains ; Boxthorn, Rhubarb, Opium, each four Drams ten Grains ; Myrrh, two Drams five Grains. Infuse them in Myrtle Wine, or in the Decoction of Roses, or of Myrtle-berries. *P. Æginet. Lib. 7. Cap. 12.*

APHRODISIUS MORBUS. The same as *Lues Venerea*. *Blancard.*

APHRODITARIUM, ἀφροδιτάριον. The Name of a Powder, recommended by *P. Ægineta* for hollow Ulcers, which is composed of equal Parts of Frankincense, Squama *Æris*, Rhoidarium, (see RHODARIUM) Amylum, and Ceruss. *P. Æginet. Lib. 4. Cap. 40. and Lib. 7. Cap. 13.*

APHROGALA, ἀφρογάλα, from ἀφρός, Froth, and γάλα, Milk.

Neither *Galen*, nor any other Writer on the *Materia Medica*, has told us what it is ; but it seems to signify the Froth of Milk, or that concreted Part of the Milk on the Top, which looks like Froth, or that rich and fat Substance, which may also be called *Epipagus*, ἐπιπαγός, (Cream) and which *Nicander*, in *Theriac.* advises to be drank against the Poison of the *Ixias*. Others say, that by *Aphrogala* is to be understood Milk stirred till it turns all to Froth. *Pliny* says, “ That many of the barbarous Nations, not knowing, or else despising, that useful Food Cheese, had a Method of condensing their Milk into a gratefully acid Substance, and into a fat Butter, which was the Spume or Froth of Milk.” *Lib. 11. Cap. 41.* By these Words we are to understand the *Oxygala* and *Aphrogala*, which latter was an excellent Remedy against a hot Dis-temperature of the Stomach, and a wholesome Aliment, in great Repute among the *Romans*, who used to cool it with Snow, as *Galen* tell us, *Meth. Med. Lib. 7. Cap. 4.* It seems to be like what we call Syllabub.

APHRON. The Name of a wild kind of Poppy, *Pliny, Lib. 20. Cap. 19.* Also the Name of a Cephalic Plaster, described by *Actius, Tetrab. 4. Serm. 3. Cap. 13.*

APHRONITRUM, APHROLITRUM, ἀφρονίτην, ἀφρολίτην, from ἀφρός, Spume, and λίθων, or, in the *Attic* Dialect, λίτρον, Nitre, Spume of Nitre. See NITRUM.

APHROS, ἀφρός, Spume or Froth.

APHROSELENOS, ἀφροσελήνη, from σελήνη, the Moon. A precious Stone, otherwise called *Selenites*, from its representing the Moon as it were in a Glass. *Goræus.*

APHROSYNE, from ἀφρων, silly. Folly, Dotage. *Castellus.*

APHTHÆ, ἀφθαί. Superficial small Ulcers in the Mouth.

*Hippocrates, Aph. 24. Lib. 7.* informs us, That new-born Children, and those which are young, are much subject to *Aphthæ*. This *Celsus* translating calls *Serpentia Oris Ulcera*, Spreading Ulcers of the Mouth. *Lib. 2. Cap. 1.*

But it appears by many Passages in *Hippocrates*, that *Aphthæ* are not confined to the Stomach ; for this Author mentions *Aphthæ* of the *Pudenda* of Women with Child, and of the *Aspera Arteria*.

*Celsus, Lib. 6. Cap. 11.* says, that those Ulcers of the Mouth are most dangerous, which the *Greeks* call *Aphthæ*, but in Children especially, to whom they frequently prove fatal ; but in Adults, they are not attended with so much Danger. These Ulcers begin at the Gums, and spread to the Palate, and over the whole Mouth, and descend even to the Uvula and Fauces ; in which Case, it is not easy for the Child to recover. It is yet worse, if the Infant is yet at the Breast, because it is difficult to prescribe proper Remedies for it. What is principally to be done is, to make the Nurse exercise herself by frequent walking, and use such Motions as move the superior Parts ; besides these, she must be put into a Bath, and be directed, whilst in it, to pour warm Water on her Breasts : Mean time she must live on mild Aliments, and such as are not very subject to corrupt : Her Drink must be Water, if the Child is feverish ; if not, it may be diluted Wine ; and, if costive, she must be purged. If her Mouth abounds with Phlegm, she should vomit. The Ulcers must be anointed with Honey, to which that sort of Rhus which is called *Syriac*, (see RHUS) and bitter Nuts, (see NUX) must be added ; or with a Com-

position of dry'd Rose-leaves, Pine-kernels, and Mint, made up with Honey ; or with the Medicine made of Mulberries, the Juice of which must be boil'd to the Consistence of Honey, and with it Saffron, Myrrh, Wine, and Honey, must be mix'd. Mean time, nothing must be given, which is capable of furnishing Matter for Humours. If the Child has sufficient Strength, Gargarisms must be us'd of the same Nature as the Remedies above-mentioned. But if milder Remedies are ineffectual, such Applications are to be made use of, as by their caustic Qualities induce a Crust upon the Ulcers ; of this sort are Scissile Alum, Chalcitis, or Vitriol. Hunger and Abstinence, in the greatest Degree that can be supported, are also useful. The Aliment should be of a mild Nature. Sometimes, in order to deterge the Ulcers, Cheese is properly enough apply'd in Honey.

*Aræteus* confines the Word *Aphthæ* to malignant Ulcers of the Tonsils, which are treated of under the Article TONSILLÆ, which see.

*Oribasius*, as *Celsus* has done, distinguishes *Aphthæ* from other inflammatory Ulcers of the Mouth, in the manner following :

When there is an Inflammation of the Mouth, when the Patient is of a plethoric Habit, or his Body full of corrupt Humours, then we have recourse to Venesection and Purgatives, prescribe Clysters, and injoin Temperance, both with regard to Eating and Drinking. If none of these Things avail, we have immediate recourse to Topics, and first of all endeavour to subdue the Distemper by astringent and cooling Medicines ; such as the *Diamoron*, with the Addition of *Omphacium*, or Rose-buds ; or dry'd Rose-leaves, Balaustines, Pomgranate-peels, unripe Galls, Alum, Frankincense, purging Thistle, and a Decoction of Myrtle, and Scissile Alum. Then the *Confectio Mororum*, in which Saffron and Myrrh have been put, is sufficient to concoct and ripen the Matter of the Inflammation ; and when it is so, Digestives must be used. For which Purpose we use Aphronitrum, Nitre, and Sulphur Vivum, which is of all other Medicines the most powerful. We also sometimes mix with it Sapa, and sometimes Mulsum, in which Origanum, Hyssop, Pennyroyal, Thyme, Savory, or Catmint, have been boil'd : For Medicines of a moderate Quality were invented, in order to be mix'd with others which have a direct Influence on the Disorder, as Necessity shall require. But in the Height of Inflammations of the Mouth, Medicines are rarely to be used ; but the Mouth is only to be wash'd and gargariz'd with such Things as allay the Vehemence of the Inflammation, such as a Decoction of Figs, a Decoction of Bran, or Oil of the Mastich-tree made warm in a double Vessel. But the Medicine itself, which, because of its Influence on the Mouth, is call'd *Stomatic*, may in the Height of the Inflammation be used for washing the Mouth, if it is only mix'd up with sufficiently diluted Mulsum, and warm new Wine boil'd to two Thirds, and with warm Water, if none of these can be had. All these I have mention'd, that the Patient might have Choice of Medicines accommodated to his Case. But, in general, all Ulcers of the Mouth, which are flaccid, require highly drying Medicines, such as Recrements of Copper, both with and without Honey or Mulsum. The Troches of *Musa*, the Juice of Rhus and Omphacium, are also of Service in this Case. But milder Ulcers of the Mouth may be cur'd with the Medicines appropriated to *Aphthæ*, such as the *Diamoron*, or a Preparation of Bramble-berries. But when Ulcers of the Mouth are very moist, and lie pretty near the Bone, there is Danger of their mortifying. In this Case, therefore, the strongest and most powerful Medicines are necessary ; for which Purpose, we reduce one of the fore-mention'd Troches to a Powder, and apply it dry to the Part affected ; for upon account of the Humours, and Warmth of the Parts contain'd in the Mouth, a Putrefaction is soon brought on. For this Reason we are for the most part oblig'd to use the most forcible Medicines in Ulcers of this kind, such as may induce a Crust as effectually as the actual Caustery. But those Ulcerations which arise on the internal Surface of the Mouth, are call'd *Aphthæ*, and are principally incident to Children. Moderate Astringents are generally us'd for the Cure : Sometimes also they grow inveterate, and in Process of Time become of difficult Cure, when they bring on a Putrefaction, or that Species of Ulcer by the *Greeks* call'd *voracæ*, from their spreading and consuming Nature. To such Children therefore, as can eat, 'tis proper in this Case to give Lentils with a little Bread, Marrow of Veal, or of a Stag, and a small Portion of Quinces, or other Astringents, such as Pears, Fruit of the Service-tree, or Medlars ; and if the *Aphthæ* are inflam'd, Lettice must be put into their Victuals. But if the Child cannot yet eat, these Things must be given to its Nurse. It will also be proper to appoint the Children themselves. If the *Aphthæ* are reddish in the Beginning, let such Medicines as are moderately cooling and astringent, be apply'd to them ; then we are to use such Things as digest without Pain. If they are yellowish, Medicines of the same, but a more cooling Nature ; if they are whitish, and full of Phlegm, absterging Medicines are necessary ; if black, strong Dige-

st. ved.



flives. But in Adults, and those, the Parts of whose Body are of a harder Contexture, *Misy*, with a little astringent Wine, is sufficient. If the Ulcer is fordid, the *Misy* is to be mix'd with Mulsum. But in those *Aphthæ* which require stronger Medicines than the *Misy*, these may properly enough be levigated with Wine and Mulsum; for these are efficacious Ingredients: But of the middling Kind, especially in the Beginnings of these Disorders, are Omphacium with Mulsum, and Rhûs with the same. In very young Children, the Flower of Roses, or even dry'd Roses themselves, are sufficient *Oribasius de Loc. Affect. Curat. L. 4. Cap. 68.*

Children are subject to a Species of Ulcer, which they call *Αφθα*, which is sometimes whitish, sometimes reddish, and sometimes black. This Ulcer resembles a Crust, and is of a very fatal and deadly Nature. In this Case, Iris, with Honey, is of Service; as also its dry Powder, blown upon the Part affected. Rose-leaves, likewise powder'd Rose-flowers, Saffron, a little Myrrh, Galls, Frankincense, *Indian Bark*, (*φλοιὸς τοῦ λιβάνης*) taken either with or without Honey. After these the Patient is to use Hydromel, and the Juice of sweet Pomgranate. *Paul. Aegineta, Lib. 1. Cap. 10.*

The Causes of the *Aphthæ* are, by *Æturius*, said to be either when the Milk of the Nurse is too scanty, or when the Child itself cannot sufficiently concoct and digest it. The Method of Cure proposed by him, is much the same with that laid down by *Oribasius*, from whom he only differs in a few trifling Circumstances, not of Weight enough to lay a Foundation for pronouncing the Cure of the one different from that of the other. *Æturius. Lib. 6. Cöl. 318.*

Those Pustules, accompanied with some Degree of Inflammation, which appear in the Mouth, the Fauces, and Œsophagus of Children, are, by Physicians, call'd *Aphthæ*; and are indeed nothing else than small Ulcers, not exceeding the Bulk of a Millet or Hemp-seed: These, notwithstanding their Smallness, sometimes become so fiery and painful, as not only to excite uneasy Sensations, and loud Shrieks, in the tender Patient, but also render Suction of the Milk, and even Deglutition itself, difficult and uneasy.

These Pustules of the Mouth differ in Degrees; for some of them are without Pain, of a red or yellow Colour, and only dispersed here-and-there on the Surface of the Gums, the Tongue, and Cheeks, and are therefore to be judged of a mild and benign Nature; whereas others are of a livid or blackish Colour, very painful, and so extended to the Uvula, Fauces, and Œsophagus, that the whole Surface of the Mouth often appears to be one continued Exulceration; and indeed these are, for the most part, of such a malignant Nature, as to consume and eat the subjacent Flesh to the very Bones.

The Matter exciting the *Aphthæ* is of a highly acrimonious, penetrating, and caustic Quality. This Matter being originally lodged in the Blood, and, by means of the Glands themselves, secreted in the glandular Covering of the Fauces, corrodes, inflames, and exulcerates the tender Flesh of the Mouth and Palate: Hence arise *Aphthæ*, and all the various Train of Symptoms, with which they may possibly happen to be complicated.

But among the more remote and less immediate Causes which concur to the Generation of so virulent a Matter, we may, above all others, reckon, first, the Milk either of Mothers or Nurses, corrupted by an improper Regimen, by a Complication of Diseases, or the violent Sallies of turbulent and uneasy Passions; and secondly, this same Milk, coagulated in the Stomachs of the sucking Children themselves, and render'd impure and corrosive by an Admixture of the Bile; for when such a Milk passes into the Blood, it cannot, in the very Nature of the Thing, fail to communicate a certain acrimonious Taint to its whole Mass, and lay a pretty sure Foundation not only for *Aphthæ*, but also for several other Disorders.

As this is the Case, we have no Reason to be surpris'd, that *Aphthæ* of various Kinds should generally either accompany or succeed those Diseases, which draw their Origin from an Impurity of the Blood, as is generally the Case in acute and malignant Fevers, Coughs, choleric Diarrhœas, Asthmas, difficult and painful Teething, and others of a like Nature; for, in Fevers, the Blood is, by reason of its excessive Heat, for the most part, deprived of its mild and gelatinous Part, and very easily acquires a saline and sulphureous Quality; but in the other Distempers mentioned, a certain sharp and vellicating Matter is in the Fault; and not only excites Coughs, Diarrhœas, and Asthmas, but is also subject to produce *Aphthæ*.

Other external Causes also frequently concur to the Production of *Aphthæ*; and especially a Neglect of keeping the Tongue and Fauces clean; the pernicious and preposterous Method of curing Fevers, and other Diseases, by hot Medicines; and exposing the Bodies of Children, when over-heated, to a cold Air; which, by checking Transpiration, has an almost unavoidable Tendency to accumulate and hoard up saline and sulphureous Sordes in the Mass of Humours. Nor ought we, on this Occasion, to exclude other Causes which have an immediate and direct Influence on the lax Compages of the Fauces; such

as Crums of Bread, or Sugar, wrapt up in a Piece of Linen Cloth, in form of a Tent; as also a Piece of Bread dipp'd in Ale, and given to Children to be suck'd. This Practice is not only followed by the lower Class of our own Countrywomen, but *Lentilius* also, *Ephemerid. German. Dec. 3. Anno 3. Appendice, Obs. 94.* has taken Notice of its prevailing in a particular Manner in *Swabia*, and censur'd it with all the Bitterness it justly deserves; for, partly by the strong Attrition of these Substances, and partly by the Change induced on the natural State of the Saliva, the tender Cuticula of the Mouth is too violently acted upon, and Pustulæ are excited: But this Species of *Aphthæ*, unless an internal Acrimony of Humours concurs, is not only soon and easily cured, but has also given Occasion to Physicians to attribute *Aphthæ* either to an internal or an external Cause.

Those *Aphthæ* which lie at considerable Distances from each other, on the Surface of the Mouth, are free from Pain, and of a red or yellow Colour, yield more easily to the Force of Medicines, than such as possess the whole Fauces, are of a blackish Colour, exulcerate deeply, and diffuse a foetid and disagreeable Smell. Neither is there so much Danger in those *Aphthæ* which proceed from an external Cause, as in those which arise from one that is internal, and draw their Origin from a depraved and corrupted State of the Juices; such as those which symptomatically accompany acute Fevers, and some other violent Distempers. Among the worst Kind of *Aphthæ*, we may justly reckon those attended with great Inflammation, a Difficulty of Breathing and Deglutition; which, in malignant Disorders, are generally bad Prognostics, and are, upon dissection the Patient when dead, often found dispersed over the whole Œsophagus, to the Stomach itself.

#### The CURE.

The Cure of *Aphthæ* varies according to the different Natures of their productive Causes; for if a depraved or corrupted Milk, either of the Mother or Nurse, is suspected as the Cause, that Cause ought to be removed by correcting the Milk; which is most effectually done by her abstaining from saline, acrid, spirituous, and acid Substances; by her strictly guarding against the Sallies of Passion, and using such Medicines as purify the Blood, and reduce it to a due Crasis: Of this Kind are the Decoctions of temperate, diaphoretic, absorbent, and gently purgative Roots and Herbs.

If, on the other hand, the *Fomes* of the Distemper is originally lodged in the Child itself, it is to be frequently purged, at proper Intervals, with due Doses of Syrup of Manna, or Succory with Rhubarb; and ply'd with such Medicines as prevent a Coagulation of the Milk, and correct its acrid *Dyscrasy*. Such Things, as, I have already said, had a Tendency to produce the *Aphthæ*, are at the same time to be carefully avoided and guarded against. Then, for correcting the Acrimony of the Humours, Decoctions of Oats, mixed with Sugar-candy and Oil of sweet Almonds, must be used. Decoctions of Turneps, or common Carrot, must also be prescrib'd for the Patient's ordinary Drink.

It is likewise proper to allay the corroding Acrimony of the *Aphthæ* by external Applications; for this Purpose we prescribe Linctuses, prepared of Diamoron, Juice of Pomgranate, and Honey; as also Juice of Turneps, incorporated with the Yolks of Eggs and Sugar; or Cream, mixed with Syrup of white Poppies, the Yolk of an Egg, and a little Nitre, applied either with the Fingers wrapp'd in a Piece of Linen Cloth, or with a Sponge. The Yolk of an Egg also, incorporated with Rose-water and Sugar-candy, as also a Mucilage of Quince-seed, mixed with Honey and a little Saffron, afford a very considerable Relief, if rubb'd on the Pustules. But I would not advise such Gargarisms as are usually prescrib'd for washing the Mouth, to be used for little Children, since they are entirely unqualified for doing what is requisite on an Occasion of that Nature.

Those *Aphthæ* which accompany acute or other Disorders, are never to be cured till that particular Distemper, whose concomitant Symptom they are, is either allay'd, or thoroughly subdued and eradicated. Now, in acute Cases, the Workings and Efforts of Nature ought by no means to be disturb'd by Purgatives; since the End is better answer'd by gentle Diaphoretics, and temperating Emulsions, prepared of the four cold Seeds and a small Quantity of Poppy-seeds. *Hoffman. Medic. Rational. Systemat. Vol. 3.*

*Riverius* recommends Narcotics in the Cure of the worst and most dangerous *Aphthæ*; because they not only ease Pain, but prevent a Fluxion of Humours to the Parts affected. "Thus, says he, I myself snatched a Boy, of four Years of Age, from the very Jaws of Death, by giving him one Grain of *Laudanum*, when his Tongue and Mouth were full of deep Ulcers, accompanied with such a Degree of Inflammation, that he could neither swallow Broths, nor endure the Application of Topics; when the Afflux of acrid Humours to his Mouth was so great, that they continually dri- vell'd from it in large Quantities; and when he pass'd the



"Days and Nights in an uninterrupted Course of Agony and Shrieks." *River. Praxis Med.*

A certain Woman was afflicted with very painful and obstinate *Aphthæ*, which would neither yield to Venesections, repeated Purges, cooling Juleps, nor anointing with the Spirit of Sulphur: She pass'd the Nights without Sleep, and could not eat without the greatest Difficulty, because her Mouth was full of little Ulcers. However, upon taking three Grains of Laudanum, for three Nights successively, the acrid Defluxion on the Mouth was stopp'd, and the *Aphthæ* cured in a few Days. *Riverii Observat. Cent. 3.*

This Author gives an Instance of *Aphthæ* being produced in the Stomach by a rash and unwary Use of Lemon-juice.

From BOERHAAVE.

*Aphthæ* are frequent in acute Diseases, attended with Inflammations of some of the Viscera. These are small, round, superficial Ulcers, on the Inside of the Mouth; which, upon an accurate Examination, appear to be Exulcerations of the Extremities of the excretory Ducts of those Glands which separate the salivary Humour, and convey it to the Mouth: Now when this Fluid is, by any Cause, render'd too thick and viscid, it stops up the Extremities of these Canals, which, upon this, exulcerate.

Every Part, therefore, into which such excretory Ducts discharge themselves in a natural State, are subject to *Aphthæ*; as the Lips, Gums, internal Parts of the Cheeks, Tongue, Palate, Fauces, Tonsils, Uvula, Throat, Stomach, and small Intestines.

It is said, that the large Intestines, tho' rarely, are infested with these small Exulcerations; and that they are propagated thro' the whole Intestinal Tube.

The Northern People, who inhabit marshy Places, are most subject to *Aphthæ* in a hot and rainy Season; and Infants and old People are, in general, most affected with them. But in Countries which are warm or mountainous, or where the Air is habitually serene and dry, they are scarcely known. See *ÆGYPTIA ULCERA*.

*Aphthæ*, in the Mouth, are usually preceded by a continual putrid Fever; or an Intermittent, degenerated into a continual Fever, which began with a Diarrhoea, or Dysentery; a considerable and perpetual Nausea, Vomiting, Loss of Appetite, and great Anxieties about the Præcordia, frequently returning; by great Weakness, or any considerable Evacuation of the Humours; by Stupor and Heaviness; by unequal, but perpetual, and not very violent Drowsiness; and by perpetual Complaints of a Sensation of Heaviness and Pain about the Stomach: And it is remarkable, that those preceded by great Evacuations of the Humours are very dangerous.

Sometimes, in the Beginning, a solitary Pustule will appear in different Parts of the Mouth; as upon the Tongue, in the Angles of the Lips, in the Fauces, or elsewhere, without any Certainty as to the Part on which they first are visible; and these are generally of a mild Nature. But sometimes they appear first at the lower Part of the Fauces, and a white, thick Crust, shining like new Bacon, which adheres firmly to the Parts, and ascends slowly, seems, as it were, to proceed from the Oesophagus: These are usually a very bad Sort, and generally fatal. But the worst Sort, and of which the Patient very seldom recovers, are those which cover the whole Mouth, as far as the Extremities of the Lips, with a hard, firm, thick, and tenacious kind of Crust. The two last Species should seem to have their Origin in the Stomach, and thence to ascend into the Mouth.

The Malignancy of *Aphthæ* may be estimated by their Colour. Thus those which are white and pellucid, and almost of the Colour of Pearls, are the least malignant; those which are white, but opaque by reason of their Thickness, are more so; but not so bad as those which are brown, yellow, or livid: The black are, of all others, the worst.

When these *Aphthæ*, or *Aphthosæ* Crusts, have adher'd some time to the Parts affected, they begin to separate, and be loosen'd from the subjacent Part, and to fall off, so that all the affected Parts are, by Degrees, and successively, freed from them: But this Separation is effected in some Kinds sooner, in others later. And hence also we may judge of the Degrees of Malignity; for the sooner the Separation happens, the less is the Danger.

Sometimes these, when fallen off, are immediately succeeded by fresh *Aphthæ*; but sometimes this Succession happens more slowly, and sometimes not at all: Sometimes also the succeeding *Aphthæ* are as thick, or more so, than the first; and hence also the Danger may be estimated; for the sooner they are renew'd, and the thicker, the greater is the Malignity.

From considering what has been premised, we may readily form an Idea of the Seat, Nature, Cause, and Symptoms of *Aphthæ*, and of their different Sorts; and hence also their Effects may be understood.

Thus, if such an *Aphthosæ* Crust, as is above describ'd, covers the whole Superficies of the Parts mention'd, all Sensation, which should be communicated to the Nerves, is intercepted, and the Patient loses his Taste. Besides this, the Egress of the

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Fluids, by these obstructed Emissaries, is utterly prevented; the Consequences of which are, a Driness of the Parts, a Dilation of the subjacent Vessels, a Putrefaction of the Fluids, stagnating under the *Aphthosæ* Crust, and an Inflammation of the Parts themselves in which they stagnate.

Hence also the Orifices of the absorbent Vessels are obstructed in such a manner, that no fresh Chyle, Fluids, or Medicines, can enter them; and this produces all those Disorders which may proceed from a Deficiency of Nourishment, and, in the End, Death.

When these Crusts fall off, there is an increased Flux of Humours from the Mouths of the distended Vessels now opened; hence a large Discharge of Saliva, or a Diarrhoea, which are good Symptoms, if the *Aphthosæ* Crusts are not renew'd; but bad, if they are.

Upon the Falling-off of the Crusts, a great Pain succeeds of the Parts underneath, which are now inflamed and exposed: These often discharge Blood, whence bloody Saliva, and a bloody Dysentery.

If what has been said is applied to the Stomach, the excretory Ducts of the Liver, Pancreas, and of the other Glands which open into the Intestines, we may form an Idea of an infinite Number of Disorders arising from this Distemper; inasmuch that a farther Detail of the Prognostics will be superfluous.

If these ulcerous Crusts are very slow of Separation, thick, broad, and compact, the subjacent Flesh, being, as it were, suffocated, inflames, suppurates, or even mortifies; the Consequences of which are malignant Ulcers, which sometimes affect the *Os Palati*, and its *Periosteum*: Hence we may judge of their Effects in the Stomach and Intestines.

#### The CURE.

1. The Impulse of the vital Fluids, upon the Parts affected, is to be gently excited, and so conducted, that, by a proper Supply of Fluids, the ulcerous Crusts may be loosen'd, separated, and fall off: This is effected by drinking great Quantities of warm, diluting, resolving, and absterging Liquids. And because, in some bad Cases, the Orifices of the Lacteals are so obturated as not easily to admit the Liquids thus taken, Fomentations, Vapours, and Baths, are of singular Use. The very best Aliment is Bread boil'd in Water, and then mixed with Wine and Honey.

Take of sweet Almonds blanch'd, two Ounces; of Pistachio-nut Kernels, one Ounce; of the four greater and lesser cold Seeds bruised, each three Drams; of excocticated Oats, three Ounces: Boil these in a sufficient Quantity of Water that two Pints of the Liquor may at last remain, in a close Vessel for an Hour; and then add, of Liquorice-root, an Ounce, and let them boil together a little: Then let the boiled Ingredients be thoroughly bruised in the Decoction; and of this let the Patient drink frequently; and with this let him wash his Mouth. Or,

Take of the Roots of Carrots, Skirrets, China, Sarsaparilla, and Turneps, each four Ounces; of whole Barley, an Ounce: Let these Ingredients be well bruised, and boiled in Water; and, to thirty Ounces of the express'd Liquor, add, of Syrup of Marsh-mallows, an Ounce. Let this be used as the preceding.

Take of the Roots of Turneps unpar'd, a sufficient Quantity; let them be grated or rasped, and let the Juice be press'd out; and, whilst it is boiling, let it be despumated; then, to sixteen Ounces of this Juice, add the Yolks of two Eggs; and of Syrup of Violets, two Ounces. Let the Patient take half an Ounce every half Hour.

The most proper Aliments, besides those mention'd before, are Decoctions of the farinaceous Vegetables.

2. The Crust must be disposed to separate soon and easily; which is effected by Fomentations, Gargarisms, and Clysters: These must consist of warm, relaxing, emollient, and deterging Liquors, which moisten the Parts by adhering to them a sufficient time, and which resist Putrefaction. Thus,

Take of the Leaves of Mallows, Brank-ursine, Marsh-mallows, Pellitory of the Wall, Mullein, Mercury, Lady's-mantle, each two Ounces; of the Roots of Marsh-mallows, an Ounce; of the Roots of Turneps, ten Ounces: To three Pints of the Decoction, made with Water, and express'd, add the Yolks of four Eggs; and Honey of Roses, two Ounces. With this let the Mouth be perpetually washed, or gargled.

Make a Cataplasim of the *Residuum*, to be applied externally to the Region of the Fauces.

Let Clysters also of this Decoction be administer'd.



## A P H

3. As soon as the Crust is fallen off, it will be proper to use anodyne and demulcent Remedies, and such as contribute to strengthen the relax'd Parts. Thus,

Take of Syrup of white Poppies, two Ounces; of Cream, two Ounces; the Yolks of two Eggs; of Rose-water, two Ounces: Let a little of this be held continually in the Mouth. Or,

Take of the Jelly of Hartshorn, or of Flesh, made very thick, and cut into Slices, a sufficient Quantity: Let one of these Slices be perpetually dissolving on the Tongue, and so gradually swallow'd.

These two Medicines act agreeably upon the excoriated Parts; and the following contributes to strengthen them.

Take of the Decoction of the fresh Leaves of Agrimony, seven Ounces; of Honey of Roses, an Ounce. Let this be applied perpetually to the affected Parts.

4. As soon as the Fever is abated, a Sediment appears in the Urine, and the Pulse begins to be free, corroborating Medicines are to be directed. Thus,

Take of the Root of the sharp-pointed Dock, an Ounce; of the Peruvian Bark, and that of Tamarisk, each six Drams; of the Leaves of Agrimony, one Handful: Boil these Ingredients in a sufficient Quantity of Water, and to a Pint and an half of the Decoction add, of the Syrup of Kermes, an Ounce. Of this let the Patient take half an Ounce every Hour. This corroborates the relax'd Vessels of the Intestines.

Sydenham advises in those *Aphthæ* which happen at the End of Fevers, together with Hiccoughs, to give an Electuary of an Ounce of the Bark, made up with the Syrup of red Poppies, or in the Form of Pills. Of this he directs the Patient to take one twelfth Part every four Hours, drinking after it a Draught of Whey; and he says, it is the most effectual Remedy he has met with, provided the Virtues of the Remedy are not impair'd by continually confining the Patient to his Bed.

5. At the End of the Distemper, some corroborating Purge should be administer'd. Thus,

Take of Rhubarb a Dram and a half; yellow Myrobalans, with the Nuclei, an Ounce and a half: Boil in a sufficient Quantity of Water for three Ounces of the strain'd Decoction; to which add, of Syrup of Succory with Rhubarb twelve Drams. Make a purging Potion.

From the preceding History and Cure of *Aphthæ*, many obscure practical Problems may be explained.

Thus, if a Reason should be required, Why, in a Fever, attended with a Diarrhoea or Dysentery, *Aphthæ* frequently appear at the End of the Distemper?

It may be answer'd, Because the most fluid Parts of the Secretions are carried off, and only the most viscid remain in the excretory Vessels of the Glands.

Why does this happen principally to Children and old People?

Because in Children the *Vires Vitæ* are languid; in old People the Juices are subject to Viscidities.

Why are those particularly subject to these *Aphthæ*, who, in the Beginning of the Fever, have been treated with Medicines, Aliment, or a Regimen, which are heating or astringent?

Because Astringents brace up the Orifices of the excretory Ducts; and a hot Treatment draws off the thinner Parts of the Fluids.

Why does a Purge, administer'd in the Beginning of such Distempers, prevent *Aphthæ*?

Because by this means those Viscidities which stick in the Ducts, and cause *Aphthæ* afterwards, are carried off.

Why does a troublesome and fatal Hiccough frequently accompany the worst Species of *Aphthæ*?

Because, in this Case, the Stomach is cover'd with an *Aphthæ* Crust, which falling off, the Extremities of the Nerves are left bare, and are consequently easily irritated to Convulsions, and liable to Inflammation and Gangrene.

Why are *Aphthæ* in the Mouth joined, by *Hippocrates*, with loose Bellics, and Prostration of Appetite?

Because when the internal Coat of the Stomach is cover'd with *Aphthæ*, there must be a Loss of Appetite, or a Chylose Diarrhoea, because the Chyle cannot enter the Lacteals; the Stomach is seldom affected with these *Aphthæ*, but the Intestines are so likewise.

Why does an *Aphthæ* Covering of the Stomach produce a Lientery?

Because no proper diluting Humour can be secreted in the Stomach, and therefore no Digestion can be performed, and the Aliment must go out of the Stomach as it enter'd.

## A P I

Why are black *Aphthæ* esteem'd fatal?

Because they tend to a Gangrene.

Why do *Aphthæ* in the Mouths of pregnant Women preface a Miscarriage?

First, because they are Evidences of a considerable Viscidity, and perhaps Acrimony, of the Juices; and secondly, because they prevent a due Supply of Chyle from entering the Lacteals; both which are Hindrances to the Nourishment of the Fœtus.

Why are *Aphthæ* frequent in Putrefactions of the Lungs, Liver, or other principal Viscera?

Because the putrid Matter convey'd from the Abscess of these Viscera to the Blood, and thence to the Glands, impress upon the several Secretions an acrimonious Taint; hence the Extremities of the excretory Ducts are corroded.

In a Consumption nothing is a more certain Preface of Death than these *Aphthæ*.

Why does a Tumor, Heat, Suffocation, and a Quinsy, sometimes succeed a Refrigeration of *Aphthæ*?

Because by contracting the *Aphthæ* and subjacent Parts, the *Aphthæ* are prevented from falling off, and the Vessels underneath are obstructed; hence the Parts swell, and are inflamed: And hence we may account for Deliria, Anxieties, Want of Rest, and cold Sweats, which frequently ensue, and prove fatal.

Nothing is more dangerous than to let cold Air, or cold Drinks of any Kind, be applied to these *Aphthæ*: Some have died suddenly, who have held cold Water in their Mouths, when they have had *Aphthæ* there.

Upon the Whole, it may be laid down as a Rule, that *Aphthæ* which are pellucid, white, thin, disseminated, soft, which easily separate without Renovation, and which are superficial, are of a good Sort.

On the contrary, those which are very white and opaque, yellow, brown, or black, which are in great Quantities, thick, cohering, hard, tenacious, corroding, and which perpetually repullulate, are extremely bad.

Dr. Harris, in his Chirurgical Dissertations, disapproves very much the Use of Spirit of Vitriol, Oil of Sulphur, or burnt Alum, in *Aphthæ*; for he says, these corrosive Applications will incline them to turn cancerous. Instead of these, he advises a Decoction of Elm-bark with the Leaves of Sanicle, for a Gargarism. In this he agrees with Boerhaave.

Dionis, however, recommends Honey of Roses acidulated with Oil of Vitriol, as a proper Mixture to touch malignant *Aphthæ* with in Children. And Sydenham, in the Case of a young Gentleman with *Aphthæ*, consequent to the Iliac Passion, tells us, he used successfully the following Gargarism:

Take of Verjuice, half a Pint; Syrup of Raspberries, an Ounce; mix, and make a Gargarism.

And indeed the general Directions we meet with in Authors, with respect to *Aphthæ*, are, to apply Remedies somewhat corrosive; but I have taken the less Notice of these, because both Reason and Experience are on the Side of the contrary Method recommended by Boerhaave and Harris.

There are some Empirical Remedies for *Aphthæ*; but none seems so very extraordinary as that which consists in anointing the Crown of the Head with the best Oil of Bays, which is said to cure effectually the *Aphthæ* of Children. This I had from a Physician of Veracity, who assured me he had frequently been a Witness of its salutary Effects.

APHTHARTOS, ἀρθῆτος, from a Negative, and φθίσις, to corrupt. Incorruptible. *Castellus*.

APHYA, APUA, ἀψύα, a small Fish. Hence ἀψύδατος χρώμα, in *Hippocrat. περὶ γυναικ. Lib. 2.* signifies a pale whitish Colour, like that of the Fish *Apuia*, proceeding from a great Hæmorrhage. *Galen in Exeg.* See APUA.

APHYLLANTHES, ἀφυλλανθής, from a Negat. φύλλον, a Leaf, and ἀνθή, a Flower. It seems to signify an apetalous Flower.

APHYLLANTES ANGUILLARÆ, a sort of Daisy. *Raii Hist. Plant.* See BELLS.

APHYLLANTES MONSPEL. See CARYOPHYLLUS.

APHYSOS, ἀφυσος, ἀφυσος, from a Negative, and φυσάω, or φυσάω, to blow. Void of Flatulency, so ἀφυσος διαίτα, *Galen, Lib. 1. Cap. 6.* τῶν κατὰ τὸν. is a Diet that generates no Inflations.

APHYTACORES, a sort of Trees, reported in *Pliny, Lib. 31. Cap. 2.* to produce Amber.

APIASTRUM. See MELISSA.

APICES, [of Apex, a Top, or Point] those little Knobs that grow on the Stamina in the Middle of the Flower. They are commonly of a dark-purplish Colour, and have been discovered, by the Help of Microscopes, to be, as it were, a sort of Seed-vessels, containing in them small globular or oval Particles, of various Colours, and exquisitely formed. They are by some supposed to be a kind of Male Sperm, which, falling down into the Flower, fecundates and ripens the Seed. *Miller's Dictionary*.

APIITES,



**APIITES**, Perry, a sort of Wine made of the Juice of Pears. *Raii Hist. Plant.* See **APITES**.

**APINEL**. This Root grows in some of the *American* Islands, and is by the native Savages called *Yabacani*; but by us *Apinel-root*, from the Name of a Captain of Horse, who served there for some time, and first made the *Europeans* acquainted with it.

It is so efficacious against Serpents, that in order to destroy them, nothing more is necessary than to thrust a Piece of it into their Mouths upon the Point of a Rod. If a Person chews it, and besmears his Hands and Feet with it, Serpents not only shun and fly from him, but, what is more surprising, he may catch them without any Danger, and do with them whatever he has a mind. 'Tis also observed, that these noxious and poisonous Animals will never enter a Chamber in which a Piece of this Root is kept. These Facts are attested by Mr. *De Hauverive*. This Root, so useful for the Preservation of Mankind, would also be beneficial for their Propagation, if that stood in need of forced Aids; which People in this Case are not much inclined to use, since the End is sufficiently answered by Instinct. *Histoir. de l'Acad. R. A.* 1724.

**APIOS**, Offic. J. B. 3. 666. *Raii Hist.* 1. 870. *Apios vera*, Ger. 407. Emac. 504. *Apios sive Ischias*, Chab. 533. *Apios sive Tithymalus tuberosus*, Park. Theat. 195. *Tithymalus tuberosus pyriformi radice*, C. B. Pin. 292. Tourn. Inst. 87. *Hist. Oxon.* 3. 342. **ROUND KNOBBED-ROOTED SPURGE**.

**APIOS**, otherwise called *Ischias*, Mountain or Wood *Chamaebalanos*, and by some *Linozostis*, shoots forth two or three reedy, slender, red Stalks, which rise but little above the Ground. The Leaves are like those of Rue, only more oblong and narrower. It bears a small Seed, and its Root, which resembles that of Asphodel, is shaped much like a Pear, but rounder, and full of Juice. The Bark is black on the Outside, but white within.

The upper Part of the Root, taken, expels Phlegm and Bile by Vomiting, the lower Part by Stool; but the Whole, taken together, purges both upwards and downwards. If you desire to extract the Juice, cut the Roots in Pieces, and put them into a Vessel of Water; stir them about, and take off the Liquor that swims a-top with a Feather, and dry it. Fifteen Grains of this, drank, will both vomit and purge. *Dioscorides, Lib. 4. Cap. 177.*

*Pliny* says, the Root is like an Onion, but larger; and the Pith of it is white, but the Bark black. They dig it in the Spring, bruise it, and put it into an earthen Vessel, and throwing away what swims a-top, the rest of the Juice purges upwards and downwards, taken to the Quantity of fifteen Grains in Hydromel. The Measure of One-eighth of a Pint is a Dose for hydropical Patients. The Powder of the dry'd Root is also given in a Potion. *Lib. 26. Cap. 8.*

It is a Species of Spurge, or a Plant which sends forth many small and low Stalks, slender, round, and reddish, lying often upon the Ground; the Leaves are small, short, resembling those of wild Rue, but less. The Flowers grow at the Extremity of the Stalks; they are small, form'd in the Shape of a Cup, cut into many Divisions, and of a pale-yellow Colour. When this Flower falls off, it is succeeded by a triangular Fruit, which divides itself into three Apartments, each of which incloses one oblong Seed; the Root is tuberous, and of the Figure of a Pear, more slender at the Bottom than at the Top, black on the Outside, and white within, full of a great deal of Milk. It is remarkable, that when the Root is large and well grown, the Plant is small; but when the Root is small, the Plant is larger. It grows in hot Countries, and in mountainous Places. It contains a great deal of Essential Salt and Oil, mix'd with a large Quantity of Phlegm and Earth.

The Root of this Plant works by Vomit, and by Stool, with Violence. They pretend, that the superior Part works upwards, and the inferior downwards; but both the Parts of the Root have the same Virtues. *Lemery de Drogues.*

**APIOS**, a Pear-tree. *Oribasius, Aetius.* See **PYRUS**.

**APIS**. See **APES**.

**APITES**, **APITES VINUM**, ἀπίτης, ἀπίτης δίνω, from ἀπίς, the Pear-tree, Perry, Wine of Pears. It is thus prepared:

Take the Pears, which must not be very ripe, and cut them in Pieces, as you would Turneps, taking out the Seeds; then put the Weight of eleven or twelve Pounds of them into ten Gallons and a Quarter of Must, and let it macerate for thirty Days; after which strain it off, and set it aside for Use.

It is thus otherwise prepared:

Cut and pound the Pears, and having pressed out the Juice, with every twelve Pints thereof, mix one Pint of Honey, and set it aside.

After the same Manner are prepared Wines of Carobs, Medlars, and Services. All these Kinds are astringent, have a grateful Sourness, and are good for the Stomach, and restrain inward Fluxes. *Dioscorides, Lib. 5. Cap. 32.*

**APIUM**: Smallage.

The Garden Smallage is an Herb effectual for the same Purposes as Coriander, and, made into a Cataplasim with Bread, or fine Flour, is also good for Inflammations of the Eyes. It comforts a hot Stomach, and represses the Breasts when turgid with grumous Milk; it provokes Urine, whether it be eaten boiled or raw. The Decoction of the Herb and the Roots resists Poison, and excites Vomiting, but binds the Belly. The Seed is a more powerful Diuretic and Alexipharmic, relieves those who have swallowed Litharge, and is a good Cauminative. It is an useful Ingredient in anodyne and theriacal Remedies, and in such as are prescribed against Coughs. *Dioscorides, Lib. 3. Cap. 74.*

The *Helecofelinum*, or Marsh Smallage, that grows in watry Places, is larger than the Garden Kind, and useful for the same Purposes. *Idem, Cap. 75.*

The *Oreofelinum* (Mountain Parsley) shoots up from a slender Root a single Stalk a Span high, which spreads into little Branches and Heads like Hemlock, but much slenderer, and bearing an oblong, slender, acrid, and fragrant Seed, like that of Cumin; it grows on rocky and hilly Places.

The Seed and Root, drank in Wine, provoke Urine and the Menfes. It is mixed in Antidotes with other Ingredients of diuretic and heating Qualities. But we must take care not to mistake the *Oreofelinum* for the *Petrofelinum*, or what grows on Rocks; for the *Petrofelinum* is another thing. *Idem, Cap. 76.*

The *Apium* which they call *Petrofelinum*, grows in *Macedonia*, on craggy Places, having a Seed like bishops-weed, but more scented, acrid, and aromatic, being a Diuretic, and Emmenagogue. It is good for the Gripes and Wind in the Stomach and Colon, and for Pains in the Side, Kidneys and Bladder, being taken in a Potion. It is mixed with other Diuretics in Antidotes. *Dioscorides, Lib. 3. Cap. 77.*

*Hippofelinum* is by some called *Griecum*, by others *Agriofelinum*, by others *Smyrnum*, though the proper *Smyrnum* be another thing. It is larger and whiter than the Garden *Apium*, with a tall, hollow, tender Stalk, distinguished, as it were, by Lines. The Leaves are larger, inclining to a Scarlet; the Tops of the Branches are like those of Rosemary, and laden with Flowers, which form themselves into an Umbella. The Seed is black, oblong, solid, acrimonious, and aromatic. The Root is sweet-scented, white, and of a grateful Taste, not thick in Body. It grows in shady Places, and by the Sides of Marshes, and is eaten like Smallage and other Greens. The Root is eaten either raw or boiled, and the Leaves and Stalks dressed either alone or with Fish; they are also pickled raw.

The Seed, drank in *Mulsam*, provokes the Menfes; and, used either in a Potion or Litus, warms those who shiver with Cold, and helps the Strangury. The Root works the same Effects. *Dioscorides, Lib. 3. Cap. 78.*

*Apium* is an Herb mightily in Request; its Branches, in great Quantities, swim in our Soops, and have a peculiar Gratefulness in Pickles. Besides, if it be made into a *Litus* with Honey, and the Eyes anointed therewith, so that they may be now-and-then fomented with the warm Decoction of the same, it gives wonderful Relief in Defluxions, and also in Rheums on other Parts, if it be bruised and apply'd alone, or with Bread, or Polenta. Fishes, when sick in Ponds, are recovered with green *Apium*. But among the Knowing, there is nothing dug out of the Earth, that has been the Subject of a greater Variety of Opinions. It has a Distinction of Sexes. *Cbrysippus* tells us, that the Female has crisper Leaves and hard, with a thick Stalk, and a hot acrimonious Taste. *Dionysius* says it is blacker, has a short Root, and breeds Worms. Both these Authors agree in making it forbidden, and altogether unlawful to be eaten, as being appropriated to funeral Feasts, and also hurtful to the Sight. The Stalk of the Female, they say, breeds Worms, for which Reason those who eat of it, of either Sex, become barren; and that Children, suckled by Women who eat it, become affected with the Falling Sickness. The Male Kind, they grant, is more innocent, and therefore it is not condemn'd with the other forbidden Plants.

The Leaves, apply'd, mollify the Hardness of the Breasts; and, boiled in Water, make it more grateful to the Taste. The Juice, especially of the Root, drank in Wine, mitigates Pains of the Loins; the same, distilled, helps Thickness of Hearing. The Seed provokes Urine and the Menfes, and brings away the Secundines. The Decoction of the Seed takes away the Marks of Blows, if the Parts be fomented therewith. Made into a *Litus* with the White of an Egg, or the Decoction of it in Water being drank, it cures Disorders of the Kidneys. Bruised in cold Water, it heals Ulcers of the Mouth. The Seed, drank in Wine, or the Root in old Wine, breaks the Stone in the Bladder; it is also given in White Wine to those who are affected with the Jaundice.

*Olostrum,*



*Olusatrum*, otherwise called *Hippofelinum*, is good against the Poison of Scorpions; the Seed, drank, cures the Gripes; and the Decoction thereof in *Mulsum*, being drank, relieves under a Difficulty of Urine. The Root, boiled in Wine, expels the Stone, and mitigates the Pains of the Sides and Loins; being drank, and the Parts anointed with the same, it cures the Bite of a mad Dog. The Juice, drank, warms those who shiver with Cold.

Some make a fourth Kind, called *Oreofelinum*, which is an upright Plant, a Span high, and has a Seed like Camin, which is effectual in provoking Urine and the Menses. The *Heleofoelinum* has a particular Virtue against Spiders; and Women take the *Oreofelinum* in Wine, as an Emmenagogue. *Pliny, Lib. 20. Cap. 11.*

Another Kind grows on Rocks, and is by some called *Petrofoelinum*. It has a peculiar Efficacy in an Abscess, if to two Spoonfuls of the Juice you add One-eighth of a Pint of Juice of Horehound, and three times that Quantity of warm Water. Some add *Bufelinum*, which differs from the Garden Kind in the Shortness of its Stalk, and the reddish Colour of its Root; but has the same Virtues, and is a powerful Remedy against the Bites of Serpents, either drank, or used as a Litus. *Idem, Cap. 12.*

*Apium* is of all Garden Herbs the slowest in shooting out of the Ground, not appearing before the fortieth Day when quickest, but generally not before the fiftieth Day. *Idem, Lib. 19. Cap. 7.* It is sown after the Vernal Equinox, the Seed being first a little bruised in a Mortar, which, they fancy, makes it the more crisped, as well as when, after sowing, it is pressed down with a Roller, or the Feet. It has a peculiar Property of changing its Colour. In *Achaia* it has the Honour to crown the Conquerors in the sacred *Nemean Games*. *Idem, Lib. 19. Cap. 8.*

This is the Account given of the different Sorts of *Apium* by the Antients. But *Miller* enumerates thirteen Species.

*Dale* mentions six Sorts of *Apium* used in Medicine. The first is the

APIUM ET ELEOSELINUM, Offic. *Apium vulgare sive palustre*, Mer. Pin. 9. Park. Theat. 296. *Apium vulgare ingratius*, J. B. 3. 100. *Apium palustre Heleofoelinum*, Chab. 396. *Apium palustre sive Officinarium*, Raii Hist. 1. 447. Synop. 3. 214. *Apium Officinarium sive Paludarium*, Merc. Bot. 1. 20. Phyt. Brit. 9. *Apium palustre*, & *Apium Officinarium*, C. B. Pin. 154. Tourn. Inst. 305. Elem. Bot. 254. Boerh. Ind. A. 58. Hist. Oxon. 3. 293. Rupp. Flor. Jen. 229. *Apium palustre Paludarium dictum*, Mor. Umb. 21. *Eleofoelinum*, seu *Paludarium*, Ger. 862. Emac. 1014. SMALLAGE.

The Roots of Smallage are about a Finger thick, wrinkled, and sinking deep in the Earth, of a white Colour, from which spring many winged Leaves, somewhat resembling Parsley, but are larger, of a yellower Colour, each single Leaf being somewhat three-square; the Stalks grow to be two or three Foot high, smooth-channelled, and somewhat angular, and very much branched; at the Division of the Branches, come forth Umbels of small yellowish Flowers, followed by Seed less than Parsley-seed, paler and hotter. The whole Plant is of a strong ungrateful Savour. It grows in marshy watry Places, flowering and ripening Seed in the Summer.

The Roots, Leaves, and Seed, are used.

The Roots are diuretic, and very good for the Stoppage of Urine, the Stone and Gravel, and open Obstructions of the Liver and Spleen, and help the Dropsy and Jaundice, and remove Female Obstructions. The Leaves are of the same Nature, and are one of the Herbs which are eaten in the Spring, to sweeten and purify the Blood, and cure the Scurvy; the Seed is hot and carminative, and is one of the Four lesser hot Seeds, as the Root is one of the Five opening Roots. *Miller Bot. Off.*

*Cordus* justly observed, that the *Apium sativum*, which is our *Celeri*, did not differ from the Smallage, any otherwise than by Culture. This Plant is bitter, acrid, and aromatic. It contains a great deal of oily volatile Salt, from which the Sal Ammoniac is not quite disengaged, but dissolved in a great deal of Phlegm, and united with a great deal of Earth. By the Chymical Analysis, it yields, beside several acid Liquors, a great deal of Sulphur and Earth, a pretty deal of an urinous Spirit, and a little concreted volatile Salt. Thus it is no Wonder, that this Plant should be Aperitive, Diuretic, Febrifugous, and Vulnerary. Six Ounces of the Juice of its Leaves, mixed with two Ounces of the *Peruvian Bark*, is a certain Cure for a Quartan Ague, and wheresoever there are Obstructions in the lower Belly. In the Scurvy, the Juice of Smallage is no less efficacious than that of Scurvy-grass, to strengthen the Gums, and cleanse the Ulcers of the Mouth. Cancerous, and other Ulcers may be bathed also with it. The Root is made use of in Aperitive Pills, Decoctions, Apozems, and Syrups. To draw the Milk, boil equal Parts of the Leaves of Smallage and Mint in Whey, strain it, and sprinkle it with Smallage-seeds powdered. *Martyn's Tournefort.*

*Bartholomæus Zorn*, in his *Botanologia*, says, that it grows naturally in moist, marshy, and shady Places. It is also planted in Gardens, where it is known under the Name of *Sallary*. Both the Seeds and Roots are used, especially in Obstructions of the Liver and Spleen; they warm, dry, purify, and attenuate; they occasion a Discharge of the Urine and Gravel, provoke the Menstrual Evacuations of Women, and carry off Fevers, Jaundice, and Dropsies; but they are very improper for such as are subject to the Falling Sickness, by reason of some particular Quality, as *Simeon Sethi* informs us. If Women with Child use them, they bring forth Monsters; and the Children which suck of them, contract the Falling Sickness, if we may believe *Pliny*. Its Root, hung about the Arm, by way of Amulet, removes Tooth-achs. *Melch. Schütz. Disp. de Denti-bus*, 4. 186. The Herb itself, and its Root attenuate and dissolve the Milk coagulated in the Breasts of Women, and dissipate its superfluous Quantity. For this Purpose some add to it Mint, Coriander, and Cumin. The expressed Juice of this Herb, mixed with Honey of Roses, is said to be an excellent Deterger of Wounds and Ulcers. See *Franc. Valeriola, Obs. 1. Lib. 15.* Some Surgeons order it to be mixed with Medicines designed for dressing Cancers, and other malignant Ulcers.

The only Shop Composition which takes its Name from *Apium*, is the

#### MUNDIFICATIVUM EX APIO.

*The cleansing Ointment with SMALLAGE.*

Take of the Juice of Smallage, one Pint; of Honey, nine Ounces; of Wheat-flower, three Ounces. Boil them till they grow thick together, of the Consistence of an Ointment, *S. A.*

This hath pass'd through all the College Dispensatories exactly the same; but I have never known it prescribed or made. *Quincy's London Dispensatory.*

The second Species of *Apium*, mention'd by *Dale*, is the

PETROSELINUM VULGARE, Offic. Park. Theat. 922. *Petrofoelinum*, Ejusd. Parad. 491. *Apium hortense*, Ger. 861. Emac. 1013. Raii Hist. 1448. *Apium hortense, sive Petrofoelinum vulgare*, C. B. Pin. 153. Tourn. Inst. 305. Elem. Bot. 254. Boerh. Ind. A. 58. Rupp. Flor. Jen. 229. Hist. Oxon. 3. 292. *Apium hortense multis, quod vulgare Petrofoelinum palatatum*, J. B. 3. 97. *Apium, Selinum, Petrofoelinum*, Chab. 396. *Apium sativum vel hortense, vulgare latifolium planum*, Mor. Umb. 22. PARSLEY.

The Root of this is one of the Five opening Roots.

Of this sort of *Apium* there are a great many Species. They are all esteem'd opening, attenuating, diuretic, and useful for Obstructions of the Liver and Spleen; help the Jaundice, provoke Urine; and are of Service against the Stone, Gravel, and Strangury. *Miller. Bot. Off.*

A distill'd Water of *Parsley*, which partakes of the Virtues of the Plant, is directed by the College to be kept in the Shops.

The third *Apium*, taken Notice of by *Dale*, is the

APIUM PYRENAICUM THAPSIAE FACIE, Tourn. Inst. 305. Boerh. Ind. A. 58. *Seseli Pyrenaicum Thapsiae folio*, Pluk. Almag. 344. Raii Hist. 2. 1808. *Seseli Pyrenaicum Thapsiae facie*, D. Fagon. Schol. Bot. 161. Parad. Bat. 229. *Selinum Pyrenaicum, lobis foliorum acutioribus*, Vail. MOUNTAIN PARSLEY, or THE SECOND BASTARD TURBITH.

It grows on the *Pyrenean Mountains*, and the Root is in Use, which serves the *Spaniards* instead of the Root of Turbith, as *Chomelinus* affirms; but it is of a noxious Quality. *Dale.*

The fourth is the

BUNUM, Offic. *Bunium Dalechampii*, J. B. 3. 29. Chab. 385. *Daucus Petrofoelini vel Coriandri folio*, C. B. Pin. 150. *Daucus Petrofoelini vel Coriandri folio, seu Bunium Dalechampii*, Park. Theat. 900. Raii Hist. 1. 449. *Saxifraga montana minor Petrofoelini vel Coriandri folio*, Hist. Oxon. 3. 274. WILD PARSLEY.

It grows in stony and rugged Places, and flowers in the Summer. The Herb is used, and is diuretic, heating, and brings away the After-birth: It is good for the Spleen, Kidneys, and Bladder. *Dale.*

The fifth is the

PETROSILINUM MACEDONICUM, Offic. *Petrofoelinum Macedonicum verum*, Ger. 864. Emac. 1016. *Petrofoelinum Macedonicum quibusdam*, Park. Theat. 924. *Apium Macedonicum*, C. B. Pin. 154. Tourn. Inst. 305. Elem. Bot. 254. Raii Hist. 1. 463. Hist. Oxon. 3. 293. Boerh. Ind. A. 59. *Apium sive Petrofoelinum Macedonicum multis*, J. B. 3. 102. Chab. 397. *Apium semine villosa seu incano, Macedonicum*, Mor. Umb. 21. *Daucus Macedonicus Apii folio*, Herm. Flor. 2. 17. MACEDONIAN PARSLEY.



It is cultivated in the Gardens of the Curious, and flowers in July. The Seeds are small, hairy, striated, of a very dark Green, of an acrid and aromatic Taste, and of a fragrant Smell.

It is principally used as a Diuretic and Emmenagogue, and sometimes as a Remedy against Diseases caused by Witchcraft. *Schroder.* Some conceited Preparers of Medicines have been so ill advised, as to reject this Simple in the Composition of the *Theiaca*, &c. as *Volckamerus* observes, and in its stead to substitute the *Smyrniacum perfoliatum Creticum*, or *Olus atrum* [Alexanders], which will by no means answer the Purpose. *Flor. Noi.* 325. *Dale.*

The sixth is the

**SELINUM MONTANUM**, Offic. *Selinum sive Apium peregrinum*, Park. Theat. 928. *Abium peregrinum, foliis subrotundis*, C. B. Prod. 31. Pin. 154. Hist. Oxon. 3. 293. *Apium semine villosa incans, peregrinum primum Clusii*, Mor. Umb. 21. *Vifnaga minor quorundam, Selinum peregrinum Clusii, semine hirsuto*, J. B. 3. 94. *Daucus tertius Dioscoridis*, Raii Hist. 1. 462. *Daucus peregrinus, foliis subrotundis pinnatis*, Herm. Flor. 2. 17. **STONE PARSLEY.**

It is sometimes found in the Gardens of Botanists. The Seed is used, and is supposed to have the same Virtues as the former. *Dale.*

*Bartholmæus Zorn* mentions a Sort of *Apium*, under the Name of

*Apium sylvestre, Alsicium dictum*, Officin. *Apium sylvestre*, Dod. *Thyffelinum quorundam, planta lacteo succo turgens, locis humidis proveniens*, J. B. *Thyffelinum Plinii*, Lob. *Olsenichium*, Cord. Thal. *Olsnitium*, Tab. *Apium sylvestre lacteo succo turgens*, C. B. *Meum Silesiacum palustre*, Schwenckf. *Daucus palustris*, Gesn. H. *Cuminum alborum*, Al.

*Dale*, amongst other Synonyma, calls it **OELNIZIUM**, Offic. Germ.

This Plant is very little known in our Shops; but is much in Vogue amongst the Germans.

This Herb grows in moist and shady Places, and especially near the Roots of Alder-trees. In Pharmacy its Root is principally in Use, which, if gather'd in the Spring, smells pretty strong, and is of a sharpish bitter Taste. It opens the Pores, dissolves, attenuates, and expels malignant Humours by Sweat. It carries off Pains in the Stomach and Belly, clears the Breast of Distensions, eases Coughs, occasions a Discharge of Gravel, and resists the Plague, contagious Fevers, and other virulent Disorders. It is also successfully used against the Bites of poisonous Animals. See *Leon Thurneisser Histor. Planta. Cap.* 14. *Casp. Schwenckfeld. Descript. Thermar. Hirschbergensj. Ed. Gortlic.* 1607. *Mich. Crugner. Chym. Garten. Bau. C.* 27. *Matth. Flacc. Tr. German. de Peste, P.* 2. C. 13. *Ed. Witt.* 1566. *A. Q. Rivin. Dissert. de Lipsiens. Pest. Ed.* 1680. *Thomas Reinef. Traët. German. de Pest. p.* 72. *Edit. Altenb.* 1681. The Root has by some been taken for the true *Meum* of the Ancients. *Bartholmæi Zorn Botanologia.*

**APLESTIA**, ἀπλεσία, from α Negative, and πλέω, to fill. Insatiableness. A Vice opposed to ἀσάρκεια, Contentment in the present State. *Galen. de Dign. & Cur. an. Morb. C.* 9.

**APLEUROS**, ἀπλευρός, from α Negative, and πλευρά, a Rib. Wanting Ribs. *Galen. Lib.* 4. *de Hippocr. & Plat. Deor. C.* 4.

**APLYTOS**, ἀπλῆς, from α Negative, and πλύω, to wash. Unwashed, an Epithet of Wool, which is otherwise call'd, in Latin, *Lana succida*, and by *Hippocrates* ἐρίον ἀπλύτον.

**APNEUSTI**, ἀπνευστί, from α Negative, and πνέω, to breathe. Without fetching Breath: Κέλευε ἀπνευστί τὸ τοιοῦτον. "Order him to drink it off at one Draught, or without fetching Breath." *Hippocrates de Intern. Affeet.*

**APNOEA**, ἀπνοία, a Defect of Respiration. "Ἄπνος ἀναπνοή," a Respiration without Breath," is spoken by *Heraclides* in *Galen, Lib.* 1. *de Diffic. Spir.* of a Respiration in those who are refrigerated, which is so small, rare, and slow, that it seems to be in a manner extinct, and is such an ἀπνοία as happens in a Strangulation of the Uterus, the Apoplexy, and Lethargy, being a Consequence of a Resolution of the Organs of Respiration.

*Diogenes Laertius* informs us, that *Empedocles*, the most celebrated of all the Disciples of *Pythagoras*, acquired an uncommon Share of Reputation for curing a Woman who was taken for dead; when, according to that Philosopher, she only labour'd under a Strangulation of the Matrix. He gave the Name ἀπνοία, which implies without Respiration, to this Disorder; and maintained, that a Patient might live thirty Days under it.

*Heraclides of Pontus*, a Philosopher who studied some time under *Aristotle*, and then under *Speusippus* the Disciple of *Plato*, wrote, among other Things, a Treatise περὶ τοῦ ἀπνοῦ, or concerning the Distemper in which the Patient is deprived of Respiration, in which he also asserted, that the Disorder might continue for thirty Days, during which time the Patient remained without Respiration, and appear'd dead, without any Danger of the Body's corrupting.

**ΑΠΟΒΑΕΝΟΝ**, ἀποβαῖνον, from ἀποβαίνω, to happen. An Event.

**ΑΠΟΒΑΜΜΑ**, ἀπόβαμμα, from ἀποβάπτω, to tincture slightly. The same as *Embamma*, a slight Tincture, and commonly applied to Liquor in which Gold Coins, or red-hot Irons, have been quench'd. *Castellus.*

**ΑΠΟΒΡΑΣΜΑ**, ἀπόβρασμα, from ἀποβράσσωμαι, to ejaculate, or eject in Æstuation, *Hipp. de Natura Pueri.* The Bran of Wheat; or, according to others, the Froth of the Sea. *Foefius. Castellus.*

**ΑΠΟΒΡΕΓΜΑ**, ἀπόβρεγμα, from ἀποβρίχω, to dilute. A Dilution.

**ΑΠΟΚΑΠΝΙΣΜΟΣ**, ἀποκαπνισμός, from ἀποκαπνίζω, to suffumigate. A Suffumigation. See **SUFFUMENTUM**.

**ΑΠΟΚΑΡΤΕΡΕΟΝ**, ἀποκαρτερίων, in *Hippocrates de Rat. Viâ. in Morb. acut.* is one that starves himself to Death: Ἀποκαρτερεῖν εαυτὸν λιμῶ ἢ ἀρχὴν τῆ βίης ἐξάγειν. "Ἀποκαρτερεῖν is to force one's self out of Life by Famine or Strangling." *Suidas. Foefius.*

**ΑΠΟΚΑΤΑΣΤΑΣΙΣ**, ἀποκατάστασις, from ἀποκαθίστημι, to restore. A Restitution, Amendment, Subsiding, Cessation. In these various Significations the Verb is used by *Hippocrates* in many Places of his Works; and in *Aretæus, Lib.* 1. *Cap.* 10. τῶν οὗ. παθῶν, the Word ἀποκατάστασις imports an intire Restitution to the former sound State.

**ΑΠΟΚΑΘΑΡΣΙΣ**, ἀποκαθάρσις, from ἀποκαθαίρω, to cleanse or purge. An Expurgation. Ἀποκαθαίρειν, or ἀποκαθαίρειν, are used by *Hippocrates* to express the Evacuation of Pus from the Breast by Spitting. Ἀποκαθάρσις χολῆς, in *Thucydides, Lib.* 2. are those bilious Vomittings and Purgations, which affected the Patients in the memorable Plague of *Athens*.

**ΑΠΟΚΕΝΩΣΙΣ**, ἀποκένωσις. The same as **ΑΒΕΝΑΚΥΑΤΙΟ**, which see.

**ΑΠΟΚΕΡΥΓΜΑ**, ἀποκέρυγμα, from ἀποκρύβω, to declare publicly. A Declaration. Ἀποκέρυγμα, in *Hippocrates*, are such Declarations or Indications as are thought proper to be made to the Patient.

**ΑΠΟΧΟΡΕΟΝ**, ἀποχωρέον, from ἀποχωρέω, to secede. Excrement in general, or whatever is discharged from the Body by Stool or Urine.

**ΑΠΟΧΡΕΜΨΙΣ**, ἀπόχρεμψις. A Hauking up of Spit; as *Apochremma*, ἀποχρεμμα, is the Matter or Spit thus evacuated. *Hippocr. Coac. & de Locis in Homine.*

**ΑΠΟΧΥΛΙΣΜΑ**, ἀποχύλισμα. The Juice of Vegetables extracted and inspissated, answering to the officinal Word *Rob.* *Castellus.*

**ΑΠΟΧΥΜΑ**, ἀπόχυμα, is that Kind of *Zopissa* which is made of the Resin and Wax that are scraped from Ships. So *Actius* understands it; but some will have it to be the Resin of the Pitch-tree. *Oribasius* prepares it in the following manner:

Take of dry Pitch, one Pound; Tar and Wax, each four Ounces; Resin of the Pine-tree, six Ounces. After they are all melted and strained, they are thrown into a Pail full of Sea-water, or common Water, and worked with the Hands after the Manner of Troches. It is of a very mollifying Quality. See **ΖΟΡΙΣΙΑ**.

**ΑΠΟΚΛΑΣΜΑ**, ἀπόκλασμα. The same as **ΑΡΑΓΜΑ**, or **ΑΒΡΟΥΚΤΙΟ**, which see. It is also called ἀποκλαυσμινον, that is, when a Bone is broken καυλησθῆναι, as the Greeks say, or after the Manner of a Stalk (καυλός), near the Joint.

**ΑΠΟΚΛΕΙΣΙΣ**, ἀπέκλεισις, from ἀποκλείω, to exclude. An Exclusion; but, in many Places of *Hippocrates*, the Verb whence it derives its Signification, is used to express a Loathing and Aversion to Food.

**ΑΠΟΚΟΠΗ**, ἀποκοπή, from ἀποκόπτω, to cut off. Abscission. See **ΑΒΕΚΤΕΙΣΙΟ**.

**ΑΠΟΚΡΙΣΙΣ**, ἀπόκρισις, in *Hippocrates*, is the same as *Εκκρίσις*, ἔκκρισις. Whatever excrementitious or redundant Matter is discharged out of the Body. In *Lib.* πεί εὐπνίων, ἀπόκρισις signifies a secreted Matter, that is the Cause and Support of a Disease. In the same Treatise it often signifies a Secretion of the Food, and Distribution of the Aliment. Ἀπόκρισις νοσήει, in the same Author, is a pestiferous Vapour, Exhalation, or unwholesome Quality impress'd on the Air.

**ΑΠΟΚΡΥΣΤΙΟΝ**, ἀποκρυστιόν, from ἀποκρύνω, to repel. An Epithet for a Remedy of a repelling and astringent Quality. *Gal. Lib.* 11. *Metb. Med.* 15.

**ΑΠΟΚΥΕΣΙΣ**, ἀποκύεσις, from ἀποκύω, to bring forth Young. A Birth. *Gal. Lib.* 1. *de Caus. Morb. Cap.* 7.

**ΑΠΟΚΥΝΟΝ**, called also *Cynanchon*, *Pardalianches*, *Cynomeron*, and *Cynocrambe*, is a Shrub with long flexible Branches, that are difficult to be broken: The Leaves resemble those of Ivy, but are softer, and sharper pointed, strongly scented, somewhat viscous, and full of a Honey-like Juice. The Fruit runs out, like a Bean-cod, a Finger in Length, of a capsular Form, containing small, hard, black Seeds.



The Leaves, mix'd with Meal, and made up into Loaves, kill Dogs, Wolves, Foxes, or Panthers, that eat of them, and immediately affect their Hips with a Palsy. *Dioscorides, Lib. 4. Cap. 81.*

The Seed, drank in Water, cures the Pleurisy, and all manner of Pains in the Side. *Pliny, Lib. 24. Cap. 11.*

Dale takes Notice of two Sorts of the APOCYNUM. The first is the

APOCYNON SYRIACUM, Offic. Mont. 37. *Apocynum Egyptianum, latifolium Asclepiadis*, C. B. Pin. 303. *Apocynum erectum incanum latifolium Egyptianum, floribus croceis*, Par. Bat. 27. Tourn. Inst. 91. *Apocynum erectum majus latifolium Egyptianum, flore luteo spicato*, Breyn. Prod. 2. 14. Pluk. Almag. 34. Hist. Oxon. 3. 609. *Apocynum Egyptianum floribus, spicatis*, Elem. Bot. 78. *Apocynum Syriacum Clusii*, Raii Hist. 2. 1088. *Beidelsar offar*, Alpin. Egypt. 85. *Beidelsar Alpini sive Apocynum Syriacum*, J. B. 2. 136. *Apocynum Syriacum & Egyptianum, Beidelsar Alexandrinum Alpini*, Chab. 119. *Offar*, Hon. Belli Epist. ad Clusium, 306. DOGS-BANE.

I find no Virtues attributed to this Plant, except those taken Notice of from *Dioscorides* and *Pliny*, which are transcribed by *Galen*, and all succeeding Authors.

The second is the

PSUEDO-IPECACUANNA FUSCA, Offic. *Apocynum erectum, folio oblongo flore umbellato, petalis reflexis, coccineis*, Cat. Jam. 89. Hist. 1. 206. Tab. 129. Raii Hist. 3. 537. *Apocynum Curassavicum, fibrosa radice, floribus Aurantii, Chamænerii foliis angustioribus*, Herm. Parad. Bat. Prod. 213. Parad. Bat. 36. Pluk. Phytog. 76. 6. Almag. 36. *Apocynum erectum, Salicis latiori folio, umbellatum, floribus Aurantiis*, Ejusd. Phytog. 138. Almag. 36. *Apocynum Novæ Angliæ subbirfutum, radice tuberosa, floribus Aurantiis*, Herm. Cat. Hort. Lugd. Bat. 646. *Apocynum Canadense angustifolium, flore Aurantio*, Mor. Hort. Msc. 232. *Apocynum erectum minus latifolium Americanum, flore umbellato Aurantio, petalis reflexis, radice tuberosa*, Breyn. Prod. 2. 15. BASTARD IPECACUANNA.

It is imported from America by the Name of IPECACUANNA. The Root is of a dusky Colour, and has a poisonous Quality. Dale.

*Boerhaave* enumerates twenty-two Species of the APOCYNUM; but I know of nothing remarkable with respect to their Virtues.

Mr. *Savrazin*, however, in the History of the Royal Academy of Sciences for 1730. says, that the APOCYNUM MAJUS SYRIACUM RECTUM furnishes the Inhabitants of Canada with a Juice, of which they make Sugar: He says, they also gather the Dew, which is found in the Bottom of the Flowers.

Dr. *Harris*, in his Dissertations, informs us, that the *Apocynum*, a Root very like the *Ipecacuanha*, is imported to us from *Jamaica*, *Porto-Bello*, and *Virginia*: This works excessively both by Vomit and Stool, even so as to exhaust all the Strength.

This cannot be distinguish'd from the true *Ipecacuanha* in Powder, but may in the Root; for the Filament, or Fibre, that runs thro' the Medullium of the *Ipecacuanha*, is of a whitish or ash Colour, but that of the *Apocynum* is yellow.

I believe this Observation is perfectly just. I remember, some Years ago, I directed half a Dram of *Ipecacuanha* for a Farmer in the Country, at the Request of a near Relation of my own, to whom he was Tenant. It happen'd, by some Accident or other, that the Person for whom it was prescribed did not take it; but some few Weeks after, the Gentleman who desir'd me to direct it, took it himself; the Consequence of which was, that he vomited excessively, and thin watery Stools came from him insensibly for several Days. This made me think he had taken *Apocynum*, instead of *Ipecacuanha*.

APOCÝRTUMENA, ἀποκύρματα, from ἀποκύρσθαι, to be turned archwise. Decreasing in manner of a Cone. Ἀποκύρματα εἰς ὄξυ διασπώμενα. "Suppurations gathering to a sharp Head." *Hippocr. in Progn.*

APODACRYTICA, ἀποδακρυτικά, from ἀπὸ, signifying negatively, and δάκρυ, a Tear. Medicines first exciting, and after evacuating, the superfluous Moisture of the Eyes, suppressing Tears, and drying the Eyes; or, in one Word, *Delacrymatives*; for in this Sense is *Delacrymare* taken by *Pliny* and *Columella*. We meet with a List of Remedies of this Sort in *Actius, Tetrab. 1. Sermon. 3. Cap. 138.* among which are *Celandine*, *Germander*, *Centauri*, *Onions*, *Pimpernel*, *Hellebore*, &c.

APODEIXIS, ἀποδείξις, from ἀποδείκνυμι, to demonstrate. Demonstration.

APODES, ἀποδες, from ἀ Neg. and πους, a Foot. A kind of Birds which have very short Feet: They are also call'd κύπελλοι, *Cypseli*. *Aristot. Lib. 9. Animal. Cap. 30.* These Birds are like Swallows, and are very much upon the Wing on account of their Feet. They build in Rocks, and fly all over the Seas; nor is there any Ship that sails never so far from Land, but finds itself within the Reach of these Apodes, which fly about it. Other Kinds sit or stand; these never rest themselves but in their Nest, where they hang or lie. They differ as much in their Economy, especially as to Food. *Pliny, Cap. 39. Lib. 10.*

Apodes, boiled in Wine, are a Remedy for the Gripes. *Idem, Lib. 30. Cap. 7.*

APODYTERIUM, ἀποδυτήριον, from ἀποδύομαι, to uncloathe: A private Room before the Entrance into the Baths, where they who went to bathe put off their Cloaths: It is also called *Conisterium*, and *Spoliarium*. *Castellus.*

APCEUM, ἄποιον, from ἀ Negative, and πῖος, of some Quality. Void of all sensible Qualities, insipid, without Astringency, Acrimony, or any remarkable Property; such as among humid Substances, Water ought to be; and, among dry ones, Amylum. *Galen* judges insipid Aliments to be more nourishing than the acrimonious and bitter. *Galen. de Al. Fac. Lib. 2. Cap. 64.*

APOGALACTISMUS, ἀπογαλακτισμός, of ἀπὸ, from, and γαλακτίζω, to suckle, from γάλα, Milk. A Weaning. See ABLACTATIO.

APOGLAUCOSIS, ἀπογλαύκωσις. See GLAUCOMA.

APOGONA, ἀπόγονα. Vital, likely to live. Ἦσιν ἂν ἐσώ τῇ τελευτῇ χροῖον, ἐκείνησι τὰ τιχόμενα ἀπόγονα γίνεσθαι. "Those Women who meet with no Disaster within the Term, are delivered of strong or lively Children." *Hippocr. Lib. 2. Epid. In this Place, and also in Lib. 6. Epid. Sect. 8. Aph. 6.* ἀπόγονα signifies the same as γόνιμα, or γονά, in *Lib. περὶ σαρκῶν*

APOLEPSIS, ἀπόληψις, from ἀπολαμβάνω, to be suppressed, retain'd, &c. An Interception, Suppression, or Retention. Thus ἀπολήψις οὐρῶν, in *Hippocr. Prorrh.* is a Suppression or Retention of Urine; and in *Coac. Praenot.* ἀπόληψις κοιλίας, a Costiveness. Again, in the same Author, we often meet with ἀπολήψις φλεβῶν, as in *Lib. de Rat. Viæ. in Morb. acut.* that is, a Stagnation from a too great Oppletion of the Veins. There are also ἀπολήψις πνευμάτων ἀνὰ τὰς φλέβας, which *Galen* explains as follows: Πνευμάτων ἀπολήψις ἀνὰ τὰς φλέβας εἰκός ἐστι ἐπὶ τῆς ἀσφυζίας λέγεσθαι φλέβας γὰρ ἐκάλον οἱ παλαιοὶ τὰς ἀρτηρίας ἀπολήψις δὲ πνευμάτων τὰς εἰς τὸν κατὰ κλίσεις τε καὶ ἡσυχίας δυνάμιν λέγειν. "It is probable, that by these ἀπολήψις (Interceptions) of the Spirits in the Veins, he means a Cessation of the Pulse; for the Antients call'd the Arteries by the Name of Veins: These *Apolepsies* of the Spirits, then, may be called their sinking into Rest and Inactivity." Such an *Apolepsis* of the Spirits attends a Catalepsis, Apoplexy, and Epilepsy, when the Brain being refrigerated, and the Blood in a Stagnation, the Course of the Spirits is intercepted by the congealed Blood. Again, in the same Book, melancholy Persons are said to be affected with ἀπολήψις πνευμάτων διὰ φλεβῶν, which is thus explain'd by *Galen*: Πνευμάτων δὲ ἀπόληψιν εἰ μὲν τῶν κατ' ἀρτηρίας λέγει, τί ἄλλο ἢ ἀσφυζία γένοιτ' ἂν τὸ πάθος; εἰ δὲ τῶν κατὰ τὸν πνεύμονα, πάλιν ἐνσταθεὰ τὴν καλεσμένην ἀπνοίαν ἀνιήσεται. "If by an *Apo-*lepis of the Spirits he means those in the Arteries, what can be the Consequence but a Cessation of the Pulse? But if he speaks it of the Spirits in the Lungs, he seems to give another Hint, tho' but obscurely, at what we call an *Apnoea*."

There is also an ἀπόληψις φλεβῶν in a quite different Sense, and means no more than the Tying or Compressing of a Vein or Artery, in order to prevent or stop an Haemorrhage: This Method is recommended by *Hippocr. Lib. 6. Epid. Sect. 7. Aph. 3.* And ἀπόληψις νοσήματός, in the same Author, signifies the Preventing the Course of a Dissemper, by putting a Stop to the Humours which caused it. *Epid. Lib. 2.*

APOLEXIS, ἀπόληξις, from ἀποληγω, to cease or end. A decaying Time of Age, in *Hippocr. παρὰ γυναικ.* and is there opposed to ἀκμή ηλικίας, "the Flower of Age."

APOLINOSIS, ἀπολίνωσις, from λίνω, Flax. So *P. Aegineta* calls the Method of curing a Fistula by raw Flax. See OMOLINON.

APOLLINARIS, Herba. The same as HYOSCYAMUS, which see.

APOLYSIS, ἀπόλυσις, from ἀπολύω, to release. A Solution, or Release, which is diversify'd according to the Subject; as, for Instance, it signifies, in *Hippocrates*, the Exclusion of the Fœtus, *Lib. 5. Epid.* of the Secundines, *Lib. 2. Prorrh.* the Solution of a Disease, *Coac. Praenot.* and also the Unloosing of a Bandage. *De Fract.*

APOLYSIA, ἀπολύσια.  *Erotian*, on *Hippocrates*, says it is either a Resolution of the Limbs, or the Relaxation of a Bandage.

APOMAGMA, ἀπόμαγμα, from ἀπομάπτω, to absterge. Any thing proper to be used as an Instrument for absterging excrementitious Matter or Sordes, as a Linen Handkerchief for the Eyes, and a Sponge for Wounds.

APOMATHEMA, ἀπομάθημα, from ἀπὸ, Negative, and μαθάνω, to learn. In *Hippocrates, Lib. de Fract.* it signifies an Oblivion of what has been learned.

APOMELI, ἀπόμели. A sweet Drink made of Honeycombs, diluted and boiled in Water. The Manner of preparing it is thus described by *Actius, Tetrab. 2. Sermon. 1. Cap. 137.*

Take white Honeycombs, full of pellucid Honey, which press out with your Hands, and mix with the best Spring Water:



Water: If your Honey be thick; take four Parts of Water for one of Honey; if liquid, let the Water be to the Honey as three to one. If the Combs be pretty dry, cut them in small Pieces, and work them with your Hands in the Water first measur'd; after which press and strain off the Liquor, and by measuring it you will know what Quantity of Honey to add. Then put the Liquor into a new Earthen Pot, in which Water has been boiled before, in order to take off its earthy Quality, and boil it over a clear Fire, still skimming off the Spume or Wax as it arises. When no more ascends to the Top, and about a seventh or eighth Part of the Whole is boiled away, remove it from the Fire, and let it cool. After it is perfectly cold, the next Day skim off what swims on the Top, and pour the rest into new Earthen Vessels, in order to be set aside in your Wine-cellar.

Galen, *Com. 3. in Hippocr. περί ἀγμῶν*, observes, that *Apomeli* was called by *Hippocrates*, and many others, *ὀξύγλυκον* or *ὀξυγλυκός* (*Oxyglycy* or *Oxyglyces*); and that some made it of Honey and Vinegar, others of Honeycombs and Vinegar boiled together: For he makes two Distinctions; one sort, he says, is sweet, another more upon the Acid; and this latter is made either of Honey and Vinegar, or Honeycombs and Vinegar. We, says *Galen*, make it of Honeycombs, putting Vinegar to the Honey, and boil them till their Qualities are united, and the Force of the Vinegar is broken.

Apomeli is endu'd with an incisive and absterfive Virtue: It purges Bile downward, provokes Urine, and prepares putrid Fevers for a Solution. It is however an Enemy to hot and dry Constitutions; and is hurtful in hot Distempers, and Inflammations of the Præcordia; and rather increases than allays Thirst. It is given after Meals; for it does Harm upon a full Stomach. *Aetius, Cap. prædicto.*

APOMYLENAS, ἀπομυλῖνας. *Galen. in Exeg. 1. ὅς. Hippocr.* explains this Term, by *προβαλὼν τὰ χεῖλη συνημμένως*, “ thrusting out the Lips compress'd together.”

APOMYLLENE, ἀπομυλλήνη. *Erotian, on Hippocrates*, says, *Τὸτο γίνεσθαι ἔστιν διαστρεῖν ἢ διοισπάζεσθαι περί τινος γυναικὸς μέλας πάρεσθαι ὄχλόν, μάλιστα δὲ ἐκ πληγῆς*. “ An *Apomyllene* happens when there is a Distortion, and, as it were, a Convulsion, with a Relaxation of the Cheek, or Parts adjacent, principally occasioned by a Blow.”

APONENOEMENOS, ἀπονενονμένος, from ἀπονοῖα, to be negligent or averse. An Adverb importing an utter Aversion to a thing. *Hippocr. Epid. Lib. 3. Egr. 2. Προς τὰ γεύματα ἀπονενονμένως ἔχεν*. “ The Patient nauseated all manner of Food.”

APONEUROSIS, ἀποιεύρωσις, from ἀπὸ and εὐρεῖν, a Nerve. The Extremity of a Muscle, called by *Hippocrates* *τεῖνον*, a Tendon, or Chord.

APOPALLESIS, APOPALSIS, ἀποπάλλεσις, ἀπόπασις, from ἀποπάλλω, to throw off, in an hasty manner. An Expulsion, or Extrusion, as when the Fœtus is expell'd by Abortion. *Hipp. περί γυναικ.*

APOPATOI, ἀπόπατοι, is a Word often used by *Hippocrates*, and is explain'd in *Erotian* by ἀφοδεύσεις, which signifies as well the Places of Easement, as the Fœces. So *Suidas* explains ἀπόπατοι by ἀφῶδες. See *APHODOS*.

APOPHLEGMATISMUS, ἀποφλεγματισμός, of ἀπὸ, from, and φλέγμα, Phlegm. A Medicine contriv'd for drawing Phlegm from the Mouth, and thence evacuating it by Spitting; for which Purpose it is held in the Mouth. Such Medicines, by their hot pungent Quality, stimulate the Fibres, and make them compress the Glands, whereby their Contents are faster thrown out into the Mouth, and so a Drain is promoted of such watery pituitous Humours, from all Parts of the Head, as have any Consent therewith. In Comas, Lethargies, Epilepsies, Palsies, and, in short, in all Disorders from a moist Temperament of the Brain, these Remedies are to be used with good Success.

As to the Form and Consistence of *Apophlegmatisms*, they are various. *Morellus* distinguishes them into liquid and dry; to which *Gobius* adds a third, that is, soft, or in the Form of an Electuary. And to these a fourth may be added, which consists of Fumes or Vapours.

Liquid *Apophlegmatisms* are made of Decoctions, Infusions, express'd Juices, and officinal Liquors; and these either mixed together, or alone.

Those which are solid usually consist of Gums, as Mastich; acrid Roots, as Pellitory of *Spain*, or Horse-radish; Leaves, as those of Tobacco; Salts, as Nitre, Sal Gemmæ, or Alum; and Fruits, as Pepper. These are sometimes used alone, and without any Preparation; and sometimes mix'd and made into the Form of Powders, Balls, and Troches, which last are ordered to be held under the Tongue, and to be suffer'd to dissolve gradually. The Powders are directed sometimes to be taken naked into the Mouth, and sometimes to be ty'd up in a Rag, and so to be chew'd.

Electuaries are form'd of such Ingredients powder'd, and made up with some Fluid, proper to give them a Consistence.

Vapours are convey'd to the Mouth by means of a Funnel, or otherwise, from Decoctions of stimulating Ingredients. And Fumes are received from dry Ingredients burnt, either in the same Manner, or by means of a Pipe, as in smoking Tobacco either mix'd or unmix'd.

Upon this Occasion I must not omit giving the Form of a medicated Tobacco, of which that so much advertis'd under the Name of the Cephalic and Ophthalmic Tobacco, is an humble Imitation:

Take of the Flowers of Rosemary, Betony, Eyebright, each two Handfuls; of Aloe-wood, Sassafras, yellow Amber, Clove-bark, Storax Calamita, each an Ounce; of the external Peel or Husk of Pistachio-nuts, an Ounce and an half; of the Cortex Elaterii, half an Ounce: Let all these Ingredients be powder'd, and mix'd together. Mix four Ounces of these Ingredients with a Pound of Tobacco, to be smok'd in the common manner.

If all these Drugs are faithfully put in, the Smoke is of an exceeding fine Smell. As I was acquainted with the good Effects of this, long before I knew any thing of Medicine, I have had many Opportunities of making myself acquainted with its real Efficacy, and know it to be capable of affording singular Relief in Dimness of Sight, and habitual Disorders of the Head proceeding from a Redundance of tenacious Lymph, provided it is duly persisted in. And it must be confess'd, that this Mixture has perform'd something little less than a Miracle, in making Tobacco agreeable, and of some real Use.

As to *Apophlegmatisms*, the Choice of the Ingredients and Forms must be directed by the several Circumstances relative to the Disease, the Patient, and the Intentions of the Physician.

Thus in Paralytic and Lethargic Cases, when a Patient cannot chew a Solid, nor manage a Liquid properly in his Mouth, a soft Form, as that of an Electuary, is best adapted to the Case; because it dissolves gradually, and produces the intended Effect, without that Care of the Person who uses it, which is requisite in other Forms. In these Disorders also the Fumes of Narcotic Ingredients are highly prejudicial.

But with respect to *Apophlegmatisms*, as well as every thing else relative to Medicine, Circumstances are so various and complicated, that much must be left to the Discretion and Judgment of a Physician, whose Reason and Experience will furnish him with a Sagacity sufficient to enable him to make a proper Choice of Ingredients and Forms suited to particular Cases which occur. It were to be wish'd, that universal Rules could be laid down in Medicine, and Maxims which admit of no Exception, because this would render Abilities and Learning less necessary, which, according to the ordinary Course of human Nature, cannot possibly fall to the Share of every one whose Duty it is to attend the Sick.

Tho' *Apophlegmatisms* in the ordinary Acceptation are confin'd to things taken at the Mouth, yet whatever by a Stimulus affects the Glands of the Mouth, Fauces, and those of the Membrana Pituitaria describ'd by *Schneider*, so as to increase the Discharge of pituitous Humours, may properly enough be call'd *Apophlegmatisms*; thus Snuffs of all Sorts are a Species of *Apophlegmatisms*.

A very effectual *Apophlegmatism*, under the Name of *Pile Adasticatoria*, or spitting Balls, is thus prepared.

Take Mastich, three Ounces; Pellitory of *Spain*, Stavesacre, each two Drams; Angelica-root, half a Dram; Cubebs, Nutmegs, each one Dram; Euphorbium, half a Scruple; Wax enough to make them into little Balls or Pellets: If the Euphorbium be thought too hot, it may be left out. *Quincy's Dispensatory.*

APOPHRADES, ἀποφράδες, from the Singular ἀποφράς, unfortunate, unlucky; an Epithet apply'd to those Days in which an acute Distemper comes to a fatal Crisis, or to no Crisis at all. *Castellus.*

APOPIITHORA, ἀποπιθήρα, from ἀποπιθίσω, which is from the Original πθίρω, to corrupt. An Abortion. The Word is used by *Hippocrates*, and also ἀπιθασμα, (*Apophtharma*) a Medicine to procure Abortion, *Lib. 5. and 7. Epid.* See *ABORTUS*.

APOPHYAS, ἀποφύας, of ἀπὸ, from, and φύω, to grow. An Appendix; any thing that grows to, or proceeds from another, as Boughs and branches. Thus ἀποφύας *Lib. περί ὁρίων φύσ.* are the Ramifications of the Veins.

APOPHYSIS, ἀποφύσις. See the Etymology under the preceding Word. The Process or Protuberance of a Bone; or that kind of Eminence of a Bone which is continuous, and makes one Piece with it, and is called by the *Greek* Term *apophysis*, which signifies an Excrescence, because it grows or thrusts out immediately from the Bone itself; such are the sharp Eminences of the Lower Jaw, &c. *Winslow.*



APOPLESMA, ἀποπλῆσμα, from ἀποπλῆζω, to compress. An Expression of Humours by Compress in the binding up of Wounds or Fractures. *Hippocr. περί ἀγμῶν.*

APOPLECTA. A Name for the internal Jugular Vein, which ascends by the Side of the *Aspera Arteria*. *Castellus.*

APOPLECTICA, Medicines against the Apoplexy. *Blancard.* They are so called instead of *Antapoplectica*. *Castellus.*

APOPLECTICÆ VENÆ. The same as JUGULARES VENÆ, which see.

APOPLEXIA, ἀποπληξία, from ἀποπλῆσαι, to strike, or knock down. An Apoplexy. This by the Latin Writers is called *Attonitus Morbus*. *Celsus* and *Cælius Aurelianus* inform us, that the most antient Medicinal Writers gave this Name to that Species of Palsy which succeeds what we call a true *Apoplexy*.

Any Disorder which instantaneously deprives a Man of Life, who a few Minutes before was, or at least seem'd to be, in perfect Health, may, according to the Derivation of the Word, be properly enough called an *Apoplexy*; but it would be more methodical to confine the Word *Apoplexy* to such sudden Disorders caused by Affections of the Brain.

#### OBSERVATION I.

A certain Envoy from *Florence* to the *French* King was suddenly seiz'd with an Apoplexy, which put a speedy Period to his Life, though, just before, he appear'd to be in an entire and confirmed State of Health.

Upon opening his Body, I found his Heart turgid; and when I cut it open, it discharged three or four Pounds of Blood. The Orifice of the great Artery was at the same time dilated to such a preternatural Size, that it would have admitted a Person's Arm. *Andreas Laurentius in Controversiis Anatom.*

From this Case *Morbius* concludes, that Apoplexies draw their Origins rather from the Obstructions of the Arteries, than those of the Nerves.

From this Case also *Bartholine* concludes, that the Causes of Apoplexies are not always to be look'd for in the Brain, since they sometimes proceed from the Blood being intercepted in the obstructed Vessels of the Heart. *Boneti Sepulch. Anatom.*

#### OBSERVATION II.

A certain Student had the Misfortune to be wounded with the Point of a Sword near his Nose, and immediately below the Orbit of the Left Eye. Soon after, he was depriv'd both of his Speech and Reason, and seiz'd with an Apoplexy and *Stertor*, which quickly put an End to his Life. Upon opening the Cranium, I found the Wound not only passing thro' the Orbit of the Eye, and the *Os Cribriforme* near the *Crista Galla*, but also affecting the Right Ventricle of the Brain; from which I extracted a Portion of black, grumous, and fibrous Blood, as long and thick as my middle Finger. The Base of the Brain, and the Region of the Cerebellum, were fill'd with extravasated Blood; and the whole Substance of the Brain itself appear'd of a ruddy Colour, as if it had been inflam'd. *Jac. Wesperus Exercit. de Apoplexia.*

#### OBSERVATION III.

A certain Gentlewoman of Distinction, having for a considerable Number of Years been subject to spasmodic Disorders, began at last to flatter herself with the Hopes of a perfect Recovery. She complain'd in the mean time of a violent Pain and Heaviness in her Head; soon after which she was seiz'd with a violent convulsive Fit, which terminated in an Apoplexy, which soon put an End to her Life. Upon raising her Scull, the Vessels running thro' the Meninges and Brain appear'd distended and stretch'd with Blood; whereas in dissecting the other Parts of her Body, scarce any Blood at all appear'd. Upon removing the thicker Membrane, thro' the other slender and pellucid one we observed a limpid Water filling the several Meanders of the Brain, and, as it were, overflowing the Whole of its Substance. *Bonet.*

#### OBSERVATION IV.

A Man of seventy Years of Age, happening to fall from a considerable Height, received a large Wound in his Scull. Next Day he recovered a little; but on the fourth Day died of an unexpected Apoplexy, after spitting up some purulent Matter. When we were examining the internal Parts of his Head, we first found the Ventricles of his Brain fill'd with a great deal of a certain Humour: Next we found a large Fragment of the *Os Cuneiforme* separated from the rest, and bearing upon the adjacent Parts, in the most remote Recesses of which there was a great deal of coagulated Blood lodg'd. But the Apoplexy proceeded partly from the Obstruction of the Processes of the *Medulla Spinalis*, which are the true Origins of the Nerves, and partly from the Angustation of the *Rete Mirabile*, which is formed by the intermixed Concourse of the Jugular Veins, and the carotid and cervical Arteries. These noble Parts being obstructed, the Patient must of course have been deprived of Sensation, Motion, and Life, according to the Maxim of *Celsus*, *S. 2. Servari non*

*potest cui Basis Cerebri percussa est*: No Art can save him, the Base of whose Brain is wounded.

#### OBSERVATION V.

A certain Butler, happening to take Flowers of Antimony from a Mountebank, fell into an Apoplexy, during which he had such a violent Ptyalism, that six full Measures of frothy Phlegm were discharged from his Mouth and Ears.

Upon opening his Body, when dead, we found his Lungs, the whole Region of his Breast, his Stomach, and his Head, full of the same kind of frothy Phlegm. *Bonet.*

#### OBSERVATION VI.

In dissecting the Body of one who lately died of an Apoplexy in the Left Ventricle of the Heart, I observed a Portion of Fat ascending into the *Arteria Venosa*, where, after blocking up its Orifice, it branch'd itself out in two Horns like the *Pythagorean* Letter Y. *Bonet.*

#### OBSERVATION VII.

A certain Priest, towards the End of the Consecration, became wonderfully foolish, and soon after died Apoplectic. Upon dissecting his Head, some round whitish Bladders, full of a phlegmatic Humour, were found upon the Corpus Callosum, which were taken for the immediate Cause of so fatal a Disorder. *Bonet.*

#### OBSERVATION VIII.

A Woman of *Leyden* had an external Tumor on the Right Side of her Forehead, which being taken off by the Hand of a skilful Surgeon, three Days pass'd without any Suspicion of a more terrible Disorder appearing; however, on the fourth Day, she was suddenly seiz'd with an Apoplexy, which prov'd mortal, as the learned *Walæus* had prognosticated, from Instances of a like Nature; because in such Tumors of the Head the Pericranium is hurt; and when the internal Membranes adhering to the Brain are dilated, the Brain itself falls down, and compresses the Ventricles. *Bonetus* from *T. Bartholine*.

#### OBSERVATION IX.

A certain old Clergyman of an untainted moral Character, of a corpulent Make, and a short wry Neck, having been long valetudinary, and leading a sedentary Life, contracted a violent scorbutic Cacoehymia; being also afflicted with a Difficulty of Breathing, an heavy Pain in his Head, and an unusual Torpor; he could scarce undergo any Labour or Fatigue, besides going between his Chamber and the Chapel every Day: Accordingly one Morning, when he had gone into the Chapel a little before Prayers began, and fallen upon his Knees, he was suddenly struck with an Apoplexy, and becoming speechless and senseless, fell prostrate on the Ground. But being forthwith taken up, and his Cloaths taken off, he was put into a warm Bed. Upon which, I myself, and other Physicians, being called, we found him not only deprived of Sensation, Pulse, and Respiration, but his whole Body was even cold and stiff; nor could we by the most diligent Application of any Medicines whatever restore him, either to Life or Warmth. Hence we suspected, that by the very first Shock of the Distemper, the Pulsation of the Heart was stopp'd, and the Motion of the Blood suppress'd.

Next Day we opened the dead Body, which by that time was become considerably stiff, not in the least doubting but a Distemper which had proved so suddenly mortal, would leave some remarkable Traces in the Brain. But neither in it, nor in any other Part within the Cranium, were the least Traces of this violent Distemper to be observed; for the Vessels running through the Meninges were only filled with a due Quantity of Blood, without any Inflammation or Extravasation. The Brain, the Cerebellum, and Medulla Oblongata, together with all their Processes and Protuberances, appeared every-where found and well-coloured, both externally and internally. There was no Effusion either of Blood or Serum in their Pores or Ducts; Neither was there any Coacervation of Matter found in the large Ventricles: Besides, the *Plexus Choroides*, both within the Brain, and behind the Cerebellum, did not in the least appear faulty; so that the morbid Matter, as fine and subtle as the Animal Spirits themselves, which it had affected, was entirely unobservable; and we could only argue for its being actually there from the Effects it produced. But lest the morbid Matter should be lodged somewhere else, after having taken an accurate View of the several Parts of the Brain, we descended to the Thorax, where we found the Lungs discoloured, and distended with a frothy Ichor. A Circumstance which sufficiently accounted for the Difficulty of Breathing! But the Heart was found, untouch'd, and entirely free from all manner of Obstructions, or polypous Concretions. Neither in its Neighbourhood, nor in any of the adjacent Viscera, was there any Abscess or Apoplethema found, by whose Contact, or foetid Exhalations, the Heart, if such a thing be possible, could be oppressed, and Respiration stopped. *Willis.*



## OBSERVATION X.

I had an Opportunity of seeing a Girl who was killed by Lightning, but no Marks of Violence appeared on her Body, except two Scars all along her Back, which looked as if they had been made with a red-hot Smith's Forceps. Internally there was no apparent Disorder, except that the Extremity of one of the Lobes of her Lungs seemed to be somewhat burned. *Brassaval, Com. ad Lib. 1. Hippocrat. de Viâ. in Acut.*

When in the Year 1581. the Bell-ringers of *Besançon* were ringing the Bells, in order to prevent the Effects of a Tempest, one of them, being struck with Lightning, died on the Spot. Upon inspecting his Body, no Wound was discovered, and the Skin was entire, only his Neck was a little blacken'd, and the Neck-band of his Shirt torn. Upon opening his Body, the principal Viscera, the Heart, Liver and Spleen, were found unaffected, and the smaller Intestines blasted. *Bonetus* from *Gilbertus*.

*Beneventus* affirms, that an Apoplexy may be occasioned by Lightning [*De Abd. Cap. 2.*]; and that he himself knew a Father and Son, who, being struck with Lightning at one and the same time, became Apoplectic, and were afterwards thoroughly cured; for such is the Influence of Lightning, that it can excite Commotions in the Humours of the Brain, and render People Apoplectic. Accordingly *Hildanus, Cent. 3. Obs. 26.* mentions the Case of a Servant, whose Head swelled prodigiously, and became black a little after he had been kill'd by the Lightning; hence 'tis plain, that in this Case, the Brain was very much injured. But Lightning rarely excites a true Apoplexy; since, for the most part, it either kills entirely, or produces such an Effect upon People, that, losing their Colour, and their Pulse, and Respiration being quite destroy'd, they resemble dead Persons.

## OBSERVATION XI.

In a very severe Winter, when every thing was covered with Snow, a certain Gentleman of great Learning was seized with a violent Pain in the Left Side of his Head; and, afterwards complaining heavily of Pains in his Abdomen, he at last died *Apoplectic*.

Upon dissecting his lower Belly, the largest Gland of his Mesentery was found scirrhus and exulcerated. Upon opening his Cranium the Right Carotid Artery ascending within the Cranium was quite ossified, or even petrified, if I may say so, and its Cavity scarce permeable. The Right Vertebral Artery was also a Third larger than that on the opposite Side. *Bonet*.

## OBSERVATION XII.

A certain dull Fellow had the Misfortune to be seiz'd with an Apoplexy, which proved mortal to him. Upon searching for the Causes of his Disorder, we found his Brain flaccid. The Meninges were overflowed with a mucous and viscid Humour; and even the third Sinus itself, with its adherent Vessels, were filled with the same Liquor. The Ventricles of the Brain were also filled with it. In the Left Ventricle of the Heart, there was a Polypus formed by a viscid Matter, and the Spinal Marrow was moistened by a Lymphatic Fluid. *Bonet*.

## OBSERVATION XIII.

A Man of fifty-six Years of Age happened to be seized with an Apoplexy: the whole Right Side of his Body was within six Hours after convulsed and contracted; but more especially the Hand and Foot on that Side. The whole Left Side of his Body, in the mean time, became paralytic; he could not speak, but a great deal of viscid Spittle flowed from his Mouth. On the second Day, he felt a kind of Concussion about his Breast, and died as if he had been suffocated.

Upon opening the Cranium, we found the Substance of the Brain sound and entire: But the Right Ventricle was full of an extravasated Blood, which was black, purulent, and streaked with different Colours. The Bottom of this Ventricle was also corroded, and, as it were, excavated. Nothing uncommon was found in the Left Ventricle, the Lungs were black and flaccid, and a Polypus was found in the Right Ventricle of the Heart.

The Wife of the Deceased informed us, that, for many Years past, he had been subject to a Vertigo; that many Days before his Death, he had complained of a heavy Pain of his Head; and that, the very Day before the Apoplexy seized him, a Discharge of Blood was made from his Nostrils. *Bonetus* from *Baglivi*.

Thus we see many Causes, and those very different from each other, may induce an Apoplexy. And, indeed, whatever is capable of putting a sudden and entire Stop to the Circulation of the Blood, may have this Effect. Thus a Palsy of the Heart, of the Lungs, or of the Muscular Coats of the principal Arteries, may be readily conceived to put an effectual Stop to the Circulation, and consequently to cause an Apoplexy. The same Effect may be produced by an Over-fulness of the

Vessels; for where there is no void Space to move in, no Motion can be carried on. Polypose Concretions in the Heart, of its Auricles, in the large Arteries, or Veins, especially the Jugulars, in the Sinuses of the Brain, particularly in or near the *Torcular Herophili*, or in the large Vessels of the Meninges; sudden Ruptures of any of the large Vessels near the Heart; or of smaller in the Meninges, in the Substance of the Brain, or its Ventricles, whether Sanguiferous, or Lymphatic; a general Viscidity of the Juices, or Languor of the vital Powers; a Congestion of Humours of any sort, in, or very near, the Brain; Wounds, Blows, any Compressure of the Brain; or whatever is capable of preventing the Influx of the Nervous Fluid into the Canals which convey it from the *Medulla Oblongata*, and *Spinalis*, to the different Parts of the Body; may produce this Distemper.

But the two most general Causes of an Apoplexy are, first; a Plethora, or Over-fulness of Blood, to which the younger Sort of People, who live freely, are principally subject.

Secondly, a Deficiency in the vital Powers, and a consequent Redundance of viscid and serous Humours, which affects particularly People advanced in Years.

Sometimes Hysteric Disorders attack the Head, and cause an Apoplexy, which also terminates in an Hemiplegia, exactly resembling that kind of Apoplexy which proves fatal to some aged and corpulent Persons, and arises from an Obstruction and Compression of the Nerves, occasioned by a copious Phlegm contained in the cortical Part of the Brain. But the Apoplexy in Hysteric Women seems to proceed from a very different Cause; for it seizes them frequently after a difficult Delivery, attended with a great Loss of Blood, or proceeds from some violent Commotion of Mind. *Sydenham*.

The Gout is also frequently productive of an Apoplexy. See ARTHRITIS.

## DIAGNOSTICS and PROGNOSTICS.

*Cælius Aurelianus* has given the Sentiments of the Antients on an Apoplexy, in the manner following:

This Disease is so called, because, upon its Approach, the Patient drops down on a sudden, as if he was struck dead by a Blow. It may be defined, *A quick and sudden Oppression, often attended with a Fever, depriving the Patient of Sensation, and seizing always instantaneously, but never slowly and gradually.* Its antecedent Causes may be esteemed the same with those of other Diseases; but the more considerable of them are, the being exposed to continual scorching Heats, or to violent Colds, frequent Indigestions, occasioned by the immoderate Use of Baths, and Excess of Venery, especially in old Men. This Distemper may also proceed from the Meninges being wounded, or in Boys from their Concussion. In some Cases therefore no Symptoms are observed previous to the Patient's dropping down; whereas in others some prognostic Symptoms precede the immediate Shock of the Distemper, such as Heaviness or Pain of the Head, Vertigo, Ringing of the Ears, Difficulty in performing accustomed Motions; Sadness of Countenance, convulsive Twitchings of the Parts, and especially of the Lips; a tremulous and scarce articulate Voice, Interruption of Speech, without any apparent Reason; Forgetfulness of what the Patient had but very lately spoken; Fulness of Countenance, and a Difficulty in discharging the Excrements. But these are also generally antecedent Symptoms in such as are threatened with an Epilepsy or Madness. The first Approach of the Distemper is attended with Loss of Speech, and Depravation of the Senses, by reason of the sudden Shock, perfect Inability of Motion in all the Members of the Body, and Distortion of the Countenance, and, in some, Retraction and Immobility of the Eye-lids, and a Gaping of the Mouth; a full and labouring Pulse, a cold Torpor of the Joints, short Respiration, a livid or leaden-coloured Countenance, and an involuntary Discharge of Tears. As the Distemper grows worse, and seems to threaten the Patient with immediate Death, the Countenance is so distorted, that it appears longer than ordinary, the Præcordia become prominent, a cold Torpor seizes the whole Body, the Lungs during Respiration, make a Noise cold Sweats break out on the superior Parts of the Body, the Eye-brows also and Eye-lids are drawn upwards, and fixed immovably in that Position. But if the Distemper abates, and takes a favourable Turn, the Torpor quits the Body, the Coldness forsakes it, and the natural Heat returns. Some Parts also will be twitched with desultory Spasms, even in those who before were entirely free from them. The Humour secreted from the Fauces is swallowed, though with much Difficulty, nor is it hindered from being so by the Cause which formerly prevented its passing that way. The Patient also, if prick'd, or call'd upon, moves his Eye-lids, and shuts his Lips, as a Sign, that he feels the Puncture, or hears the Person who calls him; and it holds universally, that some die the first Day the Distemper seizes them; others survive its Approach for two or three Days; and others escape with their Lives; some of whom recover immediately, whilst others are affected with a Palsy in one or more Parts of their Body. Some are also racked with uneasy Com-



motions of Mind, to such a pitch, that they seem to have lost their Reason, to be sad and drowsy, and, if any one awake them out of their Sleep, they speak something incoherent and foreign to the Purpose. Now this Disorder is the Result of *Stricture*, or *Tension*, and is of the quick, vehement, and acute Kind. Old Men are most subject to it, and it generally makes its Approaches in the Winter-season, and towards the End of the Autumn. It is by some also styl'd *Paraplexy*. The Head suffers principally in this Distemper, as we may easily conclude from its antecedent Symptoms, and the Violence done to the Body. The Cure is difficult even in Men of strong and robust Constitutions; and those who are weakly and tender yield more easily to its Violence, and that for this additional Reason, that they are not able to bear the stronger and more powerful Means of Relief. Hence we plainly find, that the Cure of this Disease is more difficult in Women than in Men, and in old Men and Boys, than in People who are in the Flower of their Age, in consumptive Persons, than in those who are blest with a firm and strong Habit of Body. It is also more difficultly cured in those who have gone through a Course of Sickness, than in those who have never laboured under any Distemper. The Winter-season also contributes to the Difficulty of the Cure, not only because the Cold condenses and braces up Bodies, but because it is incompatible with some Means of Cure and Recovery, such as Riding, or taking free Air in an open Coach. A Lethargy, Epilepsy, Hysteric Suffocations, according to some, the Palsy, that Species of Disorder which the *Greeks* call'd *Caras* and *Syncope*, all bear a Resemblance to, and border upon, an Apoplexy. There is nevertheless a Difference betwixt an Apoplexy and a Lethargy, since every Lethargy happens either after, or is accompany'd with a Fever, produces a slow Pulse, and does not always deprive the Patient of his Senses: Whereas an Apoplexy seizes without a Fever, renders the Pulse small and quick, and causes the Patient to drop down suddenly as if he was struck dead; add to this, that an *Apoplexy* sometimes proceeds from a Wound of the Membrane of the Brain, whereas a *Lethargy* never does (*This is a Mistake*). An Apoplexy is likewise different from an Epilepsy; since Epileptic Patients are affected with Convulsions of the whole Body, and foam at the Mouth, none of which Symptoms are ever observ'd in *Apoplectic* Cases. After the Fit also, Epileptic Patients arise, for the most part, with their Constitutions sound, whereas *Apoplectic* Patients come not off without a Palsy of the Parts. An *Apoplexy* is always accounted a Disease of the quick and acute Kind, whereas an Epilepsy is most frequently found to partake of a slow and chronical Nature. The Disease of which we are treating, differs also from Hysteric Suffocations; for these latter are not preceded by Pains of the Head, and in the Paroxysm the Matrix is found convulsed, and heaving upwards; but this never happens in *Apoplectic* Cases. Besides, *Apoplectic* Women do not remember any thing that happen'd after the Fit is over, whereas those who labour under Hysteric Suffocations can both remember and tell what Degree of Pain they suffered during the Paroxysm. Hysteric Suffocations are also found to be slow and chronical, but an *Apoplexy* never. An *Apoplexy* is also different from a Palsy, though these two Diseases were confounded by many of the Antients, among whom were *Hippocrates*, *Dioscorides*, *Praxagoras*, *Aesculapius*, *Demetrius*, and some others besides; for they called those People *Apoplectic*, whose whole Bodies were paralytic, and those *Paraplectic*, who were paralytic in some particular Parts of their Bodies. But *Themison* properly calls a Palsy of the Head, with the Operations of the Mind weakened, an *Apoplexy*; but the same Disorder in other Parts of the Body, with the Faculties of the Mind impaired, he calls only *Palsy*. But there is no Occasion for wrangling about Circumstances, on which the Method of Cure does not depend. We must only consider, that an *Apoplexy* is esteem'd a Disease of the quick and acute Kind, and a Palsy a Disorder of a slow and chronical Nature. The *Carus* also, and *Catalepsis*, are rank'd among the Diseases of which the Patients recover, and they never elevate the *Præcordia*, nor create such a Difficulty of Recovery as the *Apoplexy* does. *Carlius Auerhanus*, *Acut. Lib. 3. Cap. 5.*

Altho' the *Morbus Attonitus*, by the *Greeks* call'd *ἀποτρεξία*, sometimes seizes the Patient without any previous remarkable Symptoms, 'tis nevertheless, for the most part, ushered in by a sudden and acute Pain of the Head, a Vertigo, a Dimness of Sight, a Grinding of the Teeth during Sleep, and a Coldness of the whole Body, but especially of the extreme Parts. Then the Patient, like one thunder-struck, drops down, sometimes with Shrieks; immediately after, the Eyes are shut, and a Stertor ensues; the Difficulty of Breathing is so great, as to occasion a Danger of Suffocation, and the Breast ceases to heave, just as if it was bound full with Cords: Sense and Motion are entirely lost, and the only remaining Hope of Life consists in Respiration being preserved. And, indeed, the Nature and Danger of the Disorder bear a direct Proportion to the Difficulty or Easiness with which Respiration is perform'd; for which Reason, we conclude the Disorder fatal, when the Respiration is either intermittent, or carried on with great Difficulty. But the

Case is less dangerous when the Patient's Respiration is pretty easy, and when the Liquors he drinks are not again discharg'd by the Nose, but freely descend to the Stomach. The Cure of this Distemper, when violent, is altogether impossible; and even when slight, very difficult; and indeed, this latter Degree of the Disorder frequently terminates in a Paralysis of one or other of the Sides, and that generally within the first four Days; after which, if the Disease continues, it proves fatal. Yet the Distemper often affects some in so gentle a manner, as only to distort their Mouths, and deprive them of Motion, without any Foaming at the Mouth, Stertor, or Palsy, in which Case they may be recovered by the Use of proper Remedies. This Disease is generally most incident to Men between forty and sixty Years of Age, especially if they have the Misfortune to be of a too cold Constitution, to be frequently afflicted with heavy Pains of the Head, Drowsiness, and Dimness of Sight, or if they have short and narrow Necks, live entirely idle, or are addicted to Drinking and Gluttony. But a young Man, or even one who is moderately advanced in Years, or in Reality any one whatever, is not, during the Summer-season, subject to this Disorder, unless very considerable Causes concur; in which Case, Death is generally the Result. The Winter, on the other hand, paves a more direct Road to this Disorder, especially when cold Winds blow, or black Clouds hover in the Air. Hæmorrhoidal Discharges are of good Prefage in this Disorder; but Coldness and Insensibility are hurtful. Sweats also arising from Difficulty of Respiration are mortal. People in this Disorder often appear dead, when they are really alive, but more especially Women, and Men of cold Constitutions. However, the Truth of the Matter may fully be discovered, by applying a light Feather to the Mouth and Nose, or by placing a small Vessel full of Water on the Breast, to which if any Motion is communicated, the Patient is still alive; but if they remain entirely unmoved, he is dead. *Hippocrates's* Observation seems to be just, That a sudden Pain of the Head, accompany'd with Loss of Voice and Stertor, destroys the Patient within seven Days; but that he may be preserved, if a Fever happens before the End of that Time. *Lomii Opusc. Aureum.*

The most fatal and terrible of all Apoplexies is that which proceeds from an Effusion of Blood in the Brain, from its Vessels being burst without any external Violence, and which suddenly stops and extinguishes the vital and animal Functions.

That such an Hæmorrhage of the Brain really exists, and that the Rupture of the Vessels is its immediate Cause, is sufficiently plain from the Dissection of Subjects that have died of this Disorder. Upon such Occasions, we plainly find an Effusion of Blood, sometimes between the Cranium and the Dura Mater, sometimes between the Dura and the Pia Mater, but more frequently between the Pia Mater and the Brain, but most frequently of all, in the Windings of the Brain itself, and the Meditullium of its Ventricles. This Effusion happens also sometimes in its Basis, sometimes in a small, and sometimes in a pretty large Quantity. From dissecting Subjects of this kind, 'tis also plain, that the Blood-vessels, running thro' the Membranes and cortical Substance of the Brain, are sometimes found turgid, and, as it were, aneurysmatic, with liquid, and sometimes coagulated Blood: They are also found on some Occasions to be actually burst. The Histories of the Dissections of Subjects who have died of Apoplexies, written by the learned *Wepfer*, may be consulted for Satisfaction in this Point.

The Part then originally affected is the Brain, which is very much disposed to, and susceptible of, this Stagnation of the Blood, and the Hæmorrhage consequent upon it. For a very large Quantity, and at the least, according to *Malpighi*, a third Part of all that Blood which is thrown from the Left Ventricle of the Heart thro' the whole Body, is carry'd to it by means of four pretty large Arteries; besides, these arterial Vessels, which convey the Blood to the Brain, are very winding in the Whole of their Course, but especially in the *Pia Mater*. But the most considerable Circumstance of all is, that after these very Arteries have enter'd the Cranium, they lay aside their exterior tendinous Coat, the principal Instrument of their contractive Motion, become much smaller than those in any other Parts of the Body, and almost resemble Veins; not to mention, that these Vessels become at last so very small, that the Transition of the Blood from them, into their corresponding Veins, cannot possibly be observ'd. All these Circumstances concur to make us perceive, why the Blood in these Parts must circulate slowly, stop easily, not enter the Veins quickly and readily, but, being accumulated by continual Recruits of fresh Blood, distend and enlarge the Capacities of the several Canals, and lay a Foundation for many subsequent Evils.

From such a Disposition and State of Things as this, the Transition is easy to a Rupture of the Vessels, and an Effusion of their Contents, where those Causes concur, which occasion a Congestion of the Blood to the Head in too great a Quantity, or with an undue Impetus, produce its Stagnation there, and strongly prevent its free Return thro' the Veins; for by these means it happens, that the Vessels not only become turgid



with Blood, but, being too much distended with the continual Arrival of more, burst, and pour forth the Blood contain'd in them. This principally happens in the small Vessels of the Pia Mater, and those of the cortical Substance of the Brain, as well as those which form the Plexus Choroides, as is evident from the Dissection of Carcases.

By an Effusion of Blood in the Brain, the Secretion and Distribution thro' the Nerves of that most subtle Fluid, which conveys Motion, Strength, and Sensation to the several Parts, is not only hinder'd, but the Motion of the whole Blood circulating thro' the Brain is disturb'd and intercepted, by which means the animal and vital Functions languish apace, and are at last quite extinguish'd. That Matters stand thus, is sufficiently attested by the direful Symptoms accompanying this Hæmorrhage, and by which, as by so many diagnostic Signs, it may be distinguish'd from every other Disorder; for those who are seiz'd with it fall suddenly to the Ground, become void of all Thought and Reflection, and are depriv'd of all Sensation and Motion; all their Members become languid and flaccid, their Tongues swell, their Eye-lids are retracted and immoveable, and their Mouths remain wide open; their Deglutition is destroy'd, and their Excrements and Urine are often involuntarily discharg'd: And all these Symptoms plainly shew, that the Functions of the Brain are impair'd and injur'd, and that the Strength and Vigour of the Muscles is consequently become weak and languid.

The other Phenomena observ'd in Cases of this Nature are to be ascrib'd to the difficult and intercepted Passage of the Blood thro' the interior Vessels of the Head. Thus the Cheeks are cover'd with a red and florid Colour; the Face swells; its Vessels, especially those running thro' the Temples, become so turgid, that sometimes breaking, they pour out Blood into the Mouth, Nostrils, and Ears, especially after the Death of the Patient. And that when Putrefaction comes on, the Head is distended to an incredible Size, which is justly to be ascrib'd to the Blood's not being allow'd a free Course thro' the internal Carotids, and on that account making an Effort on the external ones; that the Eyes are distended, become prominent, stiff like Glass, and pour out Tears in great Abundance, are Phenomena that may be accounted for from the Lymph being secern'd in great Plenty from the stagnating Blood. That the Palpitation of the Heart is strong; that the Pulsation of the Arteries is at first great, and afterwards languid and slow; that the Breathing is difficult, and accompany'd with a Stertor; these are to be imputed to the Load of Blood oppressing the Lungs, and their having by that means their equal reciprocal Motions destroy'd, and becoming incapable of receiving and expelling the Air as they should do. In fine, that Vomiting and Convulsions, accompany'd with Grinding of the Teeth, happen, is to be accounted for from nothing else than the Blood lodg'd in the Vessels of the Dura Mater, and exciting Spasms in it.

Now as every Hæmorrhage presupposes such a Congestion of Blood as is sufficient to produce a Rupture in the Parts where it happens; so 'tis certain, that this must be the Case with Hæmorrhages of the Brain. This is plainly prov'd, by the Nature of all the antecedent Symptoms; the principal of which are, a dull and heavy Pain of the Head, especially of its hinder Part, accompany'd with a Vertigo, like that which attends a Fit of Drunkenness, an unequal formicating Pulse, the Sight sometimes obscur'd, and sometimes flashing or sparkling; watering and swell'd Eyes; Noise and Ringing of the Ears; a certain Heaviness of Memory and Genius; profound Sleep, attended with the Incubus, and troublesome Dreams; a Turgidness of the Jugular Veins, and a preternatural Redness of the Face.

But farther, as in order to bring a Congestion of Blood upon any Part, besides the Abundance of the Blood itself, a strong Propulsion of it by the Spasms of some other Part, and a certain Weakness and Debility in the Part, admitting the Congestion, are necessary; so we have no Reason to doubt, but these Causes concur to bring on that Congestion which happens in the Vessels of the Brain: For Reason informs us, and Experience confirms to us, that all the antecedent and precatartelic Causes of this Disease may be reduc'd to these now mentioned.

To begin then with the too great Quantity of Blood; it is entirely owing to it, that Hæmorrhages of the Brain happen most frequently to People arrived at Maturity, and, according to *Hippocrates*, *Aph.* 57. *Secl.* 6. from the fortieth to the sixtieth Year of one's Age, when the Growth or Increase of the Body being at an End, the Juices are not only treasur'd up in the Vessels in a greater Quantity than they should be, but also become thicker. Hence it also happens, that such as are of what we commonly call sanguine Constitutions, as also fat People, and those who lead a delicate, idle, and sedentary Life, or indulge themselves too much in Sleep, are very subject to these fatal Hæmorrhages. That this Misfortune also happens to those, who either thro' a Diminution of their spontaneous Hæmorrhages, or an Omission of their long-accustom'd, artificial Eva-

cuations of Blood, have acquir'd and treasur'd up, as it were, too great a Quantity of it, is abundantly plain from the Observations of Physicians. That this Disorder arises from accustom'd Evacuation of Blood being neglected, may be seen in *Acta Medica Vratisl.* 1702. That it may proceed from an Hæmorrhage of the Nose being suppress'd, is plain from *Hildanus*, *Cent.* 3. *Observat.* 2. That a Retention of the Hæmorrhoids has brought it on, may be found in the Writings of *Hippocrates*, *Amatus*, and *Zacutus Lusitanus*. For this Effect also, *Lancisi de Mortib. Subit.* ought, above all others, to be consulted. The Writings of *Fontanus*, and the *Acta Nat. Curios.* are full of Instances of this Distemper's arising from the *Menses* and *Lochia* being suppress'd. And *Hildanus*, *Cent.* 3. *Observat.* 12. gives us an Instance of its being produced by the *Menses* being discharged at the Mouth and Nose, instead of the natural Way.

But a Redundance of Blood will contribute more readily and more effectually to the bringing on this Disorder, if another Cause, that is, Spasms in some of the external Parts remote from the Head, should happen to act in Conjunction with it; for this latter Cause operates in so terrible a manner, as not only to stop the Progress of the Blood, by bracing up the Fibres, and contracting the Vessels of the Part affected, but also propels the Blood in such a manner, that it rushes to some other Parts with an Impetus, fills their Vessels, distends, and at last bursts them. But the Hardness and Largeness of the Pulse, which plainly bespeak a Stricture of the Nervous Coats of the Arteries, evidently shew, that Spasms accompany almost every Hæmorrhage, as well as this of which we are treating. The preceding Coldness of the Extremities, as also that sort of tingling Sensation which some feel in their Limbs, is likewise a collateral Proof of this Truth. For this Reason also we have just Reason to think, as, indeed, Experience testifies, that Hæmorrhages of this Kind are often incident to those who have been long subject to Spasms, especially of the Abdomen, that is, those who have been afflicted with Colic Pains, especially the spasmodic Kind, Hypochondriac Disorders, Pains from the Stone in the Bladder or Gall-bladder, or a long continu'd Series of Costiveness.

From what has been said, we may also further conclude, that every thing which has a Tendency to excite Spasms, is to be rank'd among the Causes which produce this Distemper. The Effects of the Passions of the Mind are very remarkable, with regard to this Particular, especially of Anger and Dread, which act immediately upon the nervous Parts; and, by bringing anomalous spasmodic Motions upon them, render the Circulation of the Blood irregular, and frequently produce this Disorder, as amongst the Writings of many others may be seen in those of *Hildanus*, *Schenckius*, and *Forscius*. The same Effect may be produced by the Heat of Venereal Rage, which destroying the due *Æquilibrium* of the several Motions, the Blood has in some been put into such an unnatural Commotion, that they have died Apoplectic, and, as it were, thunder-struck, in the very Time of their fatal Embraces. For farther Satisfaction in this Particular, the Reader may consult *Thuric. ab Heers*, *Observat.* 18. and *Bartholin.* (See *Venus*).

A violent Commotion of the Body, as well as of the Mind, contributes also very much to produce a Congestion of Blood in the Head; and among other Instances of this Kind, I myself knew a violent Cough excited by a small Piece of Bread getting into the Aspera Arteria, which brought on an Hæmorrhage of the Brain, and prov'd the Patient's Death.

When that acrid, corrupt, and almost poisonous Matter, for wife and salutary Purposes, secreted from the common Mass of vital Juices, in order to be propell'd to the Surface of the Body, either retreats inwardly of its own Accord, or is repell'd by external Injuries, it is of great Force, and has a direct Tendency to bring on this Disorder; because, by entering the internal nervous Membranes, it excites terrible spasmodic Strictures, by which the Blood is driven with an Impetus to the Head, and treasur'd up there. Thus *Wesfer* informs us, that this Disorder has proceeded from the closing up of running Ulcers and Fontanels; and in the *Ephemerides Naturæ Curiosorum* we have Instances of its proceeding from the Suppression of a Coryza, Sweatings of the Feet, Catarrhus Discharges, and from the striking in of the Itch. It also proceeds from repelling the gouty Humour.

Astringents unseasonably and imprudently apply'd, especially in large Hæmorrhages, produce almost the same fatal Effects on the internal nervous Parts: Of this we have observed a remarkable Instance, describ'd at length by the famous *Schultzeus*, in a Dissertation deliver'd at *Altorf*, concerning a Man who died of an *Apoplexy*, brought on by a rash Suppression of the Hæmorrhoids.

Among the Causes of this Disorder, we may justly reckon the Air itself; the unwholesome and preternatural State and Constitution of which is, by *Lemnius*, *Baglivi*, and *Lancisi*, affirm'd to have made this Disease epidemical. But what most of all contributes to the Production of this Disorder is Cold, which, by contracting the cutaneous Fibres, and bracing up the



the Vessels which lie near the Surface of the Body, forces the Humours to the internal Parts, and to the Head itself. Hence *Hippocrates*, *Seet. 3. Aph. 23.* reckon'd an Apoplexy among the Number of those Diseases which rage in the Winter-season. And *Piso* observ'd, that about the Winter Solstice, when the North Wind, which compresses Bodies very strongly, and consequently raises the Mercury in the Barometer, began to blow of a sudden, *Apoplexies* us'd to seize People who were inclin'd to them. A sudden Change of Air contributes also very much to excite this Distemper. We certainly very often observe, that when a cold Northerly Wind suddenly succeeds a long, cold, and moist Intemperature of the Air, when the Winds have blown long from the West; or also when a cold and constricting State of the Atmosphere suddenly succeeds a warm and moist State of the Air, People very readily fall into this Disorder, provided their Constitution dispose them to it. Upon this also is built that Observation of *Amatus Lusitanus*, *Cent. 1. Curat. 36.* in which he gives us an Account of an Apoplexy arising from the Body's being expos'd to the cold Air, immediately after coming out of a hot Bath.

Among the principal Causes of this Disorder we may justly reckon the Weakness of the Vessels and Membranes of the Brain, or a Diminution of their contractile Power; for without this Imbecillity, neither the Abundance, nor the too quick Arrival, of the Blood can produce this Disorder; but where it is found, the Membranes protrude the Blood with too little Force, the Vessels yield to it, the Circulation becomes slow, a Stagnation ensues, then an Infarction, and then a Rupture. This Weakness is sometimes natural, and deriv'd down to Children from their Parents. Hence it is, that this Distemper proves fatal to whole Families, Examples of which may be found in *Hoeserius*, *Forestus*, and *Sennertus*. This Imbecillity is also adventitious, as is the Case with old Men, in whom the Strength of every Part decays, and consequently of the Head; for which reason they are, *ceteris paribus*, more subject to this Distemper than young People.

Among the Causes depriving the Vessels and Membranes of the Brain of their due Tone, the principal are, Gluttony, Intemperance, and drinking to Excess of hop'd Ales, Wine, especially if impregnated with the Fume of Sulphur, and Brandy; for such is the Nature of these Liquors, that they agitate and expand the Blood, and at the same time, by that very means, distend the Vessels thro' which it flows: When this happens to be the Case with the Brain, the Distention continues, the contractile Force of its Vessels and Membranes is impair'd, and a Way pav'd for a Stagnation. From these Circumstances *Hemicus ab Heer* justly accounts for this Disease being so incident to the Inhabitants of the Northern Climates; and *Lancisi* observ'd, that, generally, no habitually sober Persons were subject to it. The same is the Case with such Substances as induce a Stupor on the Head, such as Opiates, Wormwood, Hops, Tobacco, Saffron, Live-coals, the Steams of Must and Ale, by which, whilst the Juices are rarefy'd, and the Canals preternaturally distended, the Circulation becomes slow, and is retarded.

A cachectic Habit of Body, accompany'd with a heavy Pain of the Head, in which the Medullary and Nervous Fibres of the Brain are render'd flaccid, too lubricous, and depriv'd of their contractile and oscillatory Forces, contributes very much to the bringing on this Disorder. That this State and Disposition of the Brain contribute very effectually, not only to an *Hemiplegia*, but also to a strong and sanguine *Apoplexy*, we know from many Instances. We have also found, Asthmatic People subject to this Disorder, especially, when their Distemper was fed and nourish'd by polypose Coagulations lodg'd in the Ventricles of the Heart, or pulmonary Vessels. It has also been often observ'd, that not only grumous, but polypose Masses lodg'd in the Sinuses of the Brain, especially the longitudinal Sinus, and in the internal Jugulars, have produced a fatal Effusion of Blood in the Brain.

That *Apoplexy* which proceeds from an Effusion of Blood in the Brain, is accurately to be distinguish'd from that milder Species produc'd by an Extravasation of the Serum, which is follow'd by an *Hemiplegia*, and a Palsy of the whole Side; in which Case Life is indeed preserv'd, but at the same time render'd very miserable. This Disorder happens when the Blood is carry'd to the Head with too great Force, and in too great a Quantity, but does not burst the Vessels; only, in consequence of its long Stagnation, the Serum passes thro' the Pores of the Vessels, and falling down to the Basis of the Brain, or the Sides of the Medulla Spinalis, and pressing upon it, not only hinders the Secretion of the subtil active Fluid, but also intercepts its Influx into the Nerves, and by that means deprives one or other of the Sides of all Sensation and Motion. We must not forget to take notice of the remarkable Difference betwixt sleepy Indispositions, and that now describ'd; for the former seize the Patient by Degrees, and not all on a sudden; neither do they destroy Sensation and Motion, except under the immediate Paroxysm, and by reason of the Profoundness of the Sleep.

That Observation laid down by *Hippocrates* in his Apho-

risms, *Seet. 2. Aph. 32.* corresponds very well to Truth, and what we find from Experience: *That more violent Apoplexies, such as those proceeding from an Effusion of Blood in the Brain, are absolutely incurable; but that the milder Species, proceeding from a Stagnation of the Blood, and an Extravasation of the Serum, admit of a Cure, though with Difficulty:* For, unless the Patient is relieved, and the Symptoms remit within twenty-four Hours after Blood has been taken away, and other proper Means used, all Hopes of Recovery are lost, and, according to *Caelius Aurelianus*, the third Day at the longest puts an End to the Patient's Life. This fatal Event is the more to be dreaded and look'd for, if the Disease seizes old Men of plethoric Habits, whose Strength is impair'd, and whose Brains are weaken'd; if it happens after a Fit of Drunkenness, or violent Attention of the Mind, an Excess of Anger or Terror, or also if it succeeds and follows immediately another Disease. But we are to conclude, that Death will very soon be the Fate of the Patient, if the Stertor and Difficulty of Breathing increase more and more, if the Heart beats violently, and the Pulsation of the Arteries is great, hard, and unequal; if, when the Patient recovers a little, his Mind is nevertheless unhing'd, as it were, and disorder'd; if convulsive Motions of one of the Sides, and of the Breast itself, appear; if a cold Sweat break out in Drops, especially on the superior Parts of the Body; if the Breath itself is cold; and, lastly, if the Urine and Excrements come away spontaneously.

*Celsus* advises to bleed *Apoplectic* Patients (*Attonitos*), to exhibit white Hellebore, or to purge them. Then Frictions are to be applied; mild Aliments, which are not in the least fat, and some which are acrid, are to be used. The Patient must utterly abstain from Wine. *Lib. 3. Cap. 26.*

*Aretæus* distinguishes a true *Apoplexy* from Distempers which are nearly related to it, in this manner:

An *Apoplexy*, *Paraplegy*, *Paresis* [*πάρεσις*], and *Palsy*, belong all to one Kind, as including a Defect of Motion, or Sensation, or both, and sometimes a Loss of Reason, or some one or other of the Senses. But an *Apoplexy* affects the whole Body, and is a *Palsy* [*παραλύσις*] of the Senses, Reason, and locomotive Faculty; wherefore a strong Apoplexy is incapable of a Solution, and a weak one will hardly admit of it. A *Paraplegy* is a *Paresis* of Motion and Sensation, but limited to a Part, as the Hand or Leg; and the *Palsy*, universally speaking, is a *Paresis* only of Motion and Action. If there be only a Defect of Sensation, which rarely happens, it is rather call'd *Anaesthesia* than *Paresis*. *Hippocrates* by saying, that a Leg is *apoplectic*, means, that it is like a dead Member, unserviceable and incurable; for a strong Apoplexy is to the whole System, what a Paraplegy is to the Leg. There is a proper *Paresis* of the Bladder under an involuntary Retention or Discharge of the Urine. A Distortion of the Eye-lids, Cheeks, Maxillary Muscles, and Chin, by a Convulsion, is call'd a *Spasmus Cynicus* [*κυνικός σπασμὸς*]. A Resolution of the Knees with a short Stupefaction of the Senses, a Fainting, and Falling down, we call a *Lipothymy* [*λεποθυμία*]. *Aretæus* *περὶ ἀσθῆναι καὶ σπασμῶν παθῶν*, *Lib. 1. Cap. 7.*

#### The C U R E.

The above-quoted Author is more distinct, with respect to the Cure of an Apoplexy, than any of the Antients; for which Reason, I shall give his entire Chapter.

A strong Apoplexy is mortal on all Accounts, especially to old Persons, who are most subject to this Disorder; for there is no Hope, that they should survive, because they are at once oppress'd with the Weight of the Distemper, and the Infirmities of old Age. If the Patient be young, and the Apoplexy weak, the Cure indeed is not easy, but however ought to be attempted.

The most obvious Remedy, as it is best suited to the Greatness of the Disorder, is Phlebotomy, if it be exercised in a due Measure. But the Quantity of Blood which ought to be taken away is hard to be determined, since, if you take but a little more than the Case requires, you destroy the Patient; for this little Excess is sufficient to keep them alive, being the Fuel of Life, and Matter of Nutriment to the Body. If, on the other hand, you bleed less than is requisite, you make use of a very good Remedy to little Purpose; for the Cause still remains. However, it is better to offend in this Extreme; for if the Patient seems to want it, and some favourable Symptoms appear, the Vein may again be open'd; and the most proper one for this Purpose is the Vein on the Inside of the Cubit, which in the Left Arm is disposed to bleed freely.

In a small Apoplexy it is to be considered, whether the Resolution affects the Parts on the Right or the Left Side; and the Blood, in short, must be drawn from the sound Parts, as best disposed to bleed, and fittest to make a Derivation from the Parts affected. If an Apoplexy seizes a Person without a manifest Cause, we are to proceed by these Directions in letting of Blood; but if it happens from a Blow, a Fall, or a Pressure, we are not to consider, but with all possible Speed to open a Vein, which has been to some a Remedy sufficient of itself, and the only Means of Life and Recovery.



If Phlebotomy be thought improper, because of the great Coldness, Torpor, and Insensibility, with which the Patient is oppressed, a Clyster is to be administer'd, which, by evacuating the loaded Intestines, (for this Disorder is the usual Effect of a Crapula) may cause a Revulsion of the Humours from the Head. The Clyster should be acrimonious, and a Purger of Phlegm and Choler; and have not only Nitre, but half a Dram of Euphorbium for an Ingredient in the usual Quantity of a Clyster, with the Pulp of Colocynth, or a Decoction of the Tops of Centaury in Oil or Water. The following is a very good Preparation:

Honey in the usual Quantity, Rue boiled in Oil, and Resin of Turpentine, with Salt instead of Nitre, and a Decoction of Hyssop.

If the Patient be a little roused by this Method, have a Fever come upon him, or recover his Senses; if his Pulse beats well, or good Signs appear in his Face, there is room for Hope, and we may proceed with more Confidence. When the Strength is somewhat recover'd, you are to administer the Purge call'd *Hiera* to the Patient fasting, in its full Dose, if the Strength will permit; if not, half of it, in Hydromel. After this, let him be gently carry'd in a Chair in a reclining Posture, often resting to avoid Weariness. If his Belly be loose, let it so remain; if otherwise, let him drink about a quarter of a Pint of Water or Hydromel. If a Nausea comes upon him after purging, by no means try to remove it; for the stretching of the Body tends to awaken and blow up the Sparks of Life, and the Vomiting of Phlegm carries off the Cause of the Disease. The *Hiera* is a Medicine that purges the Brain, Nerves, and Senses; and thus I have said enough of Evacuations in the Beginning.

As to the rest, the Patient must be wrapt in Wool, and be washed all over with Oleum Sicyonium, or old Oleum Glau-cinum, either of them alone, or both mixed together. And it will be the best way to melt a little Wax, to thicken the Oils, and to increase their Strength with an Addition of Nitre and Pepper, first pounded and sifted. Castor is a noble Remedy against Paralytic Disorders, if it be mixed with the before-mentioned Oils, and anointed upon the Parts; but it is much more effectual, if drank in Hydromel, in the Quantity of half a Dram; and we are to judge from the Age and Disposition of the Patient, whether it be proper for him to take it in a Course of several Days together. Ointments are better than Embrocations, as being more tolerable as well as effectual; for they do not run about, and stain the Bedcloaths, and it would be inconvenient for the Patient in this Case to have the Cloaths stick to his Body; whereas Ointments are melted and absorbed by the Heat, and are serviceable also on account of their continual Adhesion, when Embrocations run off. The Ingredients of Ointment may be such as I have named already; and besides these,

Castor, Resin of Turpentine, Euphorbium, the greater Centaury [*λεμνίσις*], Pellitory of Spain, of each an equal Quantity; of Pepper, and Galbanum, each half as much, with triple the Quantity of Egyptian Nitre; to which add as much Wax as will make it into the due Consistence of an Ointment.

Cataplasms are to be apply'd to the hard and distended Parts; these may consist of

Linseed, Fenugreek, Barley-meal, Honey, Oil, in which Rue or Dill have been boiled, the Root of Marshmallows cut in Pieces, and boiled in Hydromel, till it becomes of a wax-like Thickness; and let these Cataplasms be of an agreeable and soft Consistence.

If the Patients then have little or nothing of a Fever, these are the Remedies that are to be try'd, without regarding their Heat.

If there be an acute Fever, which appears more formidable than the other Distemper, and threatens the Life of the Patient, both Diet and Medicine, and all other Parts of the Management, are to be suited thereto. The Aliment therefore must be very thin and slender, and easy of Concoction, and the proper Seasons for eating are now to be more regarded; no Sustenance is to be taken before the Paroxysms during the whole Course of the Cure, and all our Intentions are to be directed to the Removal of the Fever.

If the Disease be protracted, and the Head in fault, a Cupping Glass must be apply'd to the back Part of the Head, and the Place must be well scarify'd; for this gives more Relief than Phlebotomy, without any Diminution of the Strength: But first of all let another Cupping Glass be apply'd between the Shoulder-blades, without Scarification, in order to make a Revulsion from that Cupping Glass on the Head.

Sometimes a Palsy affects the Œsophagus, which is the Part that can be the only Means of Relief to the Patient, as being the common Passage for Food and Medicine: And the Sick is in Danger, not only of Famine and Atrophy, but of a Cough, Difficulty of Breathing, and Suffocation; for whatever liquid

Aliment you put into his Mouth slides into the Aspera Arteria, neither the Tonsils doing their Office by descending to depress the Food, nor the Epiglottis, which is in the Nature of a Lid or Cover to the Aspera Arteria, subsiding into its proper Place. It will be necessary therefore, by means of a long Spoon introduced into the Œsophagus beyond the Aspera Arteria, to convey some Hydromel, or Cremor of Ptisan, into the Stomach, and so supply the Defect of Deglutination. If the Patient lie at the Point of Death, and his Neck, together with his Breath, seem to be condensed and closed up, we are to treat the Neck, and the Parts under the Chin, with heating Ointments and Fomentations. They who apply a Cupping Glass under the Chin, in order to open a Passage to the Stomach, act unskilfully, and to no Purpose; for there is no Need of a Dilatation, but of a Compression of the Parts, in order to Deglutition. But a Cupping Glass dilates the Œsophagus, and by a Retraction, and holding the Parts at a Distance from one another, is an Enemy to spontaneous Deglutition: But this Part ought rather to be left at Liberty, that it may the better protrude the Aliment forwards into the Stomach. Besides what has been observed, a Cupping Glass fills the Trachea so as to endanger Suffocation; and if you should apply one to different Parts of the Throat, it would be of no Service; for the Multitude of Muscles, Nerves, Tendons, and Veins, are interpos'd betwixt the Œsophagus and the Glasses.

Sometimes the Bladder, and its neighbouring Part the Rectum, become Paralytic, so as to be incapable of discharging their Contents; whence they remain always full, and the Bladder in particular swells to an enormous Size. Sometimes a Palsy affects these Parts in such a manner, that they can retain nothing, but all runs from them as if they were dead. In this Case it is not safe to search the Bladder with a Catheter, for fear of causing a Sphacelus in that Part, or of throwing the Patient into Convulsions. The best way is to wash the Intestines with moderate Clysters of Cremor of Ptisan; but the only Remedy to be depended upon in all Palsies, whether general, or of some particular Part, is an Infusion in Oil. *Arctæus περι θίγαπ. ζζ. παθ. Lib. 1. Cap. 4.*

From COELIUS AURELIANUS.

The Cure of the Apoplexy has been insisted on by none of the principal Physicians among the Antients; for they generally thought, that it was to be ascrib'd to a Palsy. *Hypocrates* alone [*Aphor. 42. Sect. 2.*] says, That it is impossible to cure a violent Apoplexy, and not easy to cure a gentle one. The Abettors also of other Sects in this Case fomented the Head with Vinegar and Oil, and the other Parts of the Body with Wine and Oil, covering up the Patient with undress'd Wool. They likewise carefully embrocated the Head with a Mixture of Ivy, Mother of Thyme, and Hog's Fennel; the acrimonious and astringent Qualities of which ought in this Case to be avoided. A Method of Cure therefore adapted to the Nature of the Distemper is to be used. The Patient is to be lodg'd in a Place moderately light and warm. The Joints are to be gently rubb'd; and the Middle of the Head and Neck are to be cover'd with clean Wool. Warm Fomentations of sweet Oil are also to be used, and the Face is to be covered with a Sponge wrung out of warm Water. Warm Water is to be drank; and Mulsim is to be gradually swallow'd. Phlebotomy is also to be used; nor is it necessary to wait [*ad diuturnum*] till the third Day before that Operation be performed; since it may properly enough be done when the Paroxysm is least violent, or about Break of Day, when the Coldness and Torpor of the Body seem to be succeeded by a gentle Warmth: For those who have hurried on to Phlebotomy before this favourable Concurrence of Circumstances appeared, have unawares performed the Operation in the Height of the Paroxysm, or, performing it at the time the Patients were expiring, could possibly be of no Service to them; since at that Time the weakened Body is incapable of sending forth any Blood, tho' the Vein appears to be open'd. Abstinence is also to be used for the first three Days; then hot Ointments are to be apply'd, and Vaporations by means of Sponges wrung out of warm Liquors; forbile Aliment is proper, or Bread infused in warm Water, or Mulsim. If the Patient is not costive, a common Clyster is to be injected; and Cupping Glasses, with Scarification, are to be apply'd at the Time already directed, that is, in those Intervals when the Disease rages least, to the Back of the Head, and whole Spine. Vaporations, with Sponges, and laxative Cataplasms, are to be used. Then the whole Head is to be shav'd, and Cupping Glasses are to be apply'd to several Parts of it; and till the Distemper abates, the Patient is only to be nourish'd every other Day; but if his Strength is much spent, he may be fed daily. When the Disease declines, Cerecloths are to be used, and the Body is to be immersed and bathed in Oil, or in warm Water and Oil. Then Variety of Food becomes proper, sometimes Pot-herbs, sometimes Fish, and sometimes Fowl. The Bath must also now be used; a few Apples may be eaten, and Wine may be allow'd. But too immoderate and excessive an Use of the above-mentioned things is to be avoided, by reason of the Dan-



ger of the Distemper, and the Difficulty of its Cure. *Cælius Aurelianus, Acut. Morb. L. 3. C. 5.*

From PHILUMENUS.

Those who are seized with an Apoplexy must be plentifully anointed with thin Oil. The Head is also to be anointed with Oil of Roses, in which Cows-parasit has been boiled; and Mulsam is to be instill'd into the Mouth. Perfumes are likewise to be used, such as Castor, Opopanax, or Galbanum. The Patient's Mouth is also forcibly to be opened, and the Finger, or a Feather, dipt in Oil, introduced into it, in order to remove any superfluous Matter that may happen to be lodg'd in it. The Anus also is to be anointed with such Substances as have a Tendency to draw forth, and dispel Flatulences. If the Violence of the Distemper is not abated by these means, we must then have recourse to acrid Clysters, with which Brine and Honey have been mixed. After these several Steps have been taken, a Vein must be open'd. Upon which we must again betake ourselves to stimulating Medicines. *Oribas. Lib. Octav.*

*Galen's* Method of Cure is much the same with that of *Philumenus* mention'd by *Oribasius*, only it is a little fuller, and more circumstantial; for he orders Attempts to be made to procure a Discharge of the injected Clysters by Friction of the Belly, and Region of the Loins. He also orders the Vein to be opened in the Right Arm; and the Patient's Pulse, the Colour of his Face, and his Respiration, to be carefully adverted to during the Evacuation of Blood; and if no bad Consequence ensues, he orders Phlebotomy to be repeated; and the Patient is to be excited by foetid Smells, and by frequently calling to him. If any Part is remarkably weakened by the Violence of the Distemper, he orders a Bolster of Wool, impregnated with *Sicyonian*, or any other rich old Oil, to be apply'd to it.

In Cases where Blood cannot be procured, the Patient's Throat is to be tickled, in order to bring on a Vomiting; his Anus is to be anointed with such Substances as draw out Flatulences, and severe Cuppings are to be apply'd to the Region of his Loins for some time, and then to the Pubes and Lower Belly. When none of these Means succeed, he orders *Hiera* to be pour'd into the Mouth, or injected by way of Clyster. If the Distemper is complicated with a Fever, which he says sometimes comes on the first or second Day, and is an hopeful Symptom, the Fever is not to be neglected; but if any noxious Matter remains in the Intestines, it is to be evacuated, if lodg'd near the Anus, with Clysters; if otherwise, with Purgatives, and especially with the *Hiera* of *Archigenes*. After the Patient is thus purg'd, Cuppings, with Scarification, are to be used on the Patient's Præcordia and Head; and, if any Pain is felt lower, Scarification is there also to be used, especially in Women about the Region of the Uterus. The Evacuations by Stool and Urine must be kept free and easy, and the Patient must be fed daily, but sparingly, with such Foods as are light, warm, and cleansing. The Food in this Case may for the most Part be edulcorated with Honey. *Actius, Tetrabib. 2. Serm. 2. C. 27.*

The Cure of an Apoplexy, propos'd by *Paulus Ægineta*, agrees with these already mentioned, in the most material Circumstances. Only he is for anointing the Body with Oil impregnated with Sulphur, and the Head with Oil of Chamomile or Dill, in which Cow-parasit or Calaminth have been boiled. He also orders Sternutatories and Apophlegmatisms, or Decoction of Thyme or Origanum in Vinegar, in order to promote a Discharge of Phlegm from the Mouth. If the Patient is depriv'd of Speech, and if his Strength will permit, he uses Cuppings, with Scarification, on the Back of the Head, and also on the Præcordia, if possible. Then the Patient is to have recourse to Gestation in a Chair, a Sedan, or Hanging Bed; and after the fourteenth Day to proceed to other Gestations, and use for Aliment old *AVOMELT*, with Crums of Bread, or *Alica*. After this he orders a little *Hiera* to be given. After the twenty-first Day he orders the Use of the Bath; and Wine mix'd with warm Water to be drank. The Patients ought also, according to him, to live on the Sea Coast if possible. *Paulus Ægineta, Lib. 3. Cap. 18.*

Father *Malbranch* gives an Account of a Man who was cur'd of an Apoplexy by a great many Clysters of Coffee. And Mr. *Chaplain*, Physician of *Montpelier*, cured another who labour'd under the same Disorder, by giving him a Grain of Laudanum. *Hist. de l'Acad. R. 1702.*

Those who are seiz'd with a phlegmatic Apoplexy, grow pale, and fall into a profound Drowsiness. Their Pulse is small, they are reliev'd by emetic and purgative Medicines, and become worse after Bleeding. Hence we may infer, that some viscid Substance, of a weak Impetus, and sufficiently thick, produces these kinds of Apoplexies. In a sanguine Apoplexy, on the other hand, the Patient's Face becomes red; the Blood-vessels of the Head become very turgid. The Drowsiness is not very great, nor the Pulse so remarkably weak. He is also relieved by Venesection, and his Symptoms are generally heighten'd by emetic and purgative Medicines. From these Symptoms we

may easily conclude, that Apoplexies of this Kind arise from an Obstruction of the Course of the Blood and Spirits in the Brain and circumjacent Vessels. *Bagliivi.*

Agreeable to this Observation of *Bagliivi* is that of Dr. *John Drummond*, in the *Medical Essays*: Suppose two Persons seized with an Apoplexy; one is a full-bodied vigorous young Man, after a Debauch; the other is an old feeble Person, long subject to Catarrhs: I presume Bleeding very plentifully must be the principal thing depended on for the Cure of the first; and that this Method would very effectually destroy the other, who must be treated with every thing that stimulates.

Dr. *Calderwood* (in his new Method of curing the Apoplexy) condemns the common Method of letting Blood from any Vein, giving Emetics, or sharp Clysters, and applying Blisters: But insists much on the Advantage of Arteriotomy; and recommends Cordials in the Cure of the Apoplexy.

'Tis a Circumstance not to be forgot, that some Physicians assert their having learnt from Experience, that People, when so violently seiz'd with Apoplexies, as that no Medicines can possibly rouse them, have sometimes had that Effect very quickly produced upon them by the Application of Cauteries to the Body: But they are not all of the same Mind, with regard to the particular Part to which the Application should be made; for *Scultetus* (*Obs. 34.*) has directed the Application of a red-hot Iron to the back Part of the Head; whereas to others, especially *Zacutus Lusitanus*, and *Riverius*, the Space between the first and second Vertebrae of the Neck seems a Place much more commodious and proper for that Purpose. Some recommend the Place where the sagittal and coronal Sutures meet, whilst others entirely disapprove of that Practice. And, indeed, *Mistichelli*, an Italian Author, in a Book publish'd in his Mother-tongue, concerning the Apoplexy, asserts, That in order to rouse and recover from that Disorder, the actual Caution is apply'd so successfully to no Parts of the Body, as to the Soles of the Feet. And the particular Method of burning them, on Occasions of this Nature, he endeavours to represent in Figures. See Tab. 33. Fig. 11. Where the Places burnt are represented by the Letters A A, and the Caution itself by the Letter B; but it may be of any other Form as well as Quadrangular. I myself try'd this new Method on a Man who was Apoplectic, but I could not rouse him by it, and he soon after died. *Heister.*

Since this Disorder attacks so suddenly, and is attended with so imminent Danger, timely Assistance is to be called in, whilst there as yet remain any Hopes of Safety. The Patient is to be laid in a light and temperate Place in such a Posture, as that his Neck may neither recline too much, nor yet be quite erect; and his Feet are, above all things, to be kept warm with Feathers or Cloths. As for the Cure itself, the several Steps of it are to be indicated by the Causes; and, because the Chief of these are the antecedent Efflux of the Blood, which abounded too much in the Vessels of the Brain, the preternatural Congestion, and the Vis Motrix, or moving Force, of the Vessels and Membranes of the Brain, being weakened, the Cure is to be directed by, and have a relation to, these Causes; so that the chief Intentions of Cure are to divert the Motion and Impetus of the Blood from the Head, and to restore Strength to the debilitated and weakened Parts, that the Blood which does not now circulate, may again be put in Motion.

For answering the former of these Intentions, Bleeding in the very Beginning of the Disorder has, in all Ages, been looked upon as a Circumstance of the greatest Moment and Efficacy, and must, in the very Nature of the thing, be a choice and excellent Remedy. *Dodonæus*, as well as *Nynmannus*, deservedly reckoned it the first and principal Step to be taken in the Cure, in his *Observat. Medic. Cap. 8. Exercit. Pract. p. 385.* where he gives an Account of a Woman of seventy-two Years of Age being cured of an Apoplexy by Bleeding. Besides, that Nature herself points out this Step, is plain from that Observation of *Lancisi*, in which he gives us an Account of a Man of almost seventy Years of Age being cured of the antecedent Symptoms of an Apoplexy by a Discharge of twelve Pounds of Blood from his Nose.

But in what Shape Blood is to be let, is not by all agreed upon. Some are of Opinion, that in this Case, Arteriotomy, or the opening of an Artery, is preferable to all other Methods of letting Blood; but the strongest Abettor of this Practice is *Catherwood*, who, in a small Book, written in English, endeavours to establish it by Arguments drawn from Reason and Experience. Some German Physicians have given their Suffrage in behalf of this Practice; and, among the rest, *Loriv*, of *Erstfeld*, in his *Medic. Pract.* Nor indeed, does the Advice seem improper; 'tis only to be lamented, that the Unskillfulness of Surgeons, and the Novelty of the Thing, should hinder the Practice from becoming universal. Many recommend Venesection, but differ in their Sentiments with regard to the Place, where the Vein is to be opened. Some order opening the Veins of the Arms, others those of the Forehead. Some those of the Nostrils, and others those under the Tongue. *Morgagni* recommends opening the Occipital Veins, *Advers. Anat. 6. p. 108.*



p. 108. because these Veins pass within the Cranium, and have a Communication with both the lateral Sinuses. For this Reason, when they are opened, the Blood, which they were to convey into the Sinuses, is taken away; hence the Quantity of Blood, which passes through these Sinuses, is lessened, and its Motion increased, to the great Relief and Advantage of the Patient. But because the Trunks of these Veins lie very deep, and are sometimes found divided into many small Ramifications, he is of Opinion, that Cuppings, and frequent deep Incisions, are preferable. In this manner *Zacutus Lusitanus* [*Med. Princ. Hist. Lib. 1. Hist. 33.*] affirms, that he cured two Apoplectic Patients. But the generality of Physicians, and those the most skilful, as *Severinus*, *Lancisi*, and *Freind*, recommend opening the Jugular Veins, because, lying very near the Brain, the taking away some of their Contents must afford Space and Liberty for the Blood, impacted and congested in the Brain, to flow with the greater Ease and Freedom.

In letting Blood, these Cautions are to be observed: Let it be done as soon as possible, before the small Arteries are so dilated as to lose their Tone, or the Brain be inundated with the Effusion of Blood. Let the Orifice be sufficiently large, that the Blood may flow out quickly, and in a large Stream, because a slow Efflux is attended with no Advantage. Let the Vein be opened as near to the Part affected as is possible, the Arm for Instance, or the Jugulars: The Quantity of Blood to be taken is to be determined by the Fulcres of the Vessels, the State of the Pulse, and the Strength of the Patient; though it ought always to be very large. If the Body is plethoric, if the Constitution is sanguine, or if the Disorder takes its Rise from a Stoppage of some habitual Evacuation of Blood, let Phlebotomy be ordered again and again, since *Dionis* assures us, that the opening a Vein seven different times, has, in this Case, produced happy Effects. But 'tis first to be done in the Foot, then in the Arm or Neck, lest by first opening a Vein in the superior Parts, a greater Afflux of Blood should be invited to the Head from the inferior Parts, and the Circumference of the Body.

For diverting the Afflux of Blood from the Head, besides Venesection, those Medicines are also efficacious, which purge pretty strongly. I do not mean those drastic and herculean Cathartics, which contain something of a poisonous Quality; but those harmless and innocent ones, which only stimulate the nervous Coats of the Intestines to a proper Degree of Motion, such as *Sal Gemmæ*, *Seltz Salt*, and *Sal Ammoniac*. A pretty large Dose of these is to be put into Clysters; and such Powders are to be added as are proper for discussing Flatulencies, and corroborating the Tone of the Intestines. Of which Kind are the Powders of Rue, Sage, Marjoram, Savory, Thyme, Mother of Thyme, Flowers of Lavender, Lilly of the Valley, *Roman Chamomile*, the Seeds also of Caraway and Dill, together with expressed Oils, and Oils of Rue, Chamomile, and Bays. The Clysters, thus prepared, are to be injected often, but not in great Quantities, lest they should not be retain'd; they are also to be thrown in with a Syringe, that they may penetrate the deeper, and reach the farther.

But such Medicines as strengthen the weakened nervous Parts, and stimulate them into a proper Motion, and by that means promote and further the Discussion of the stagnant Humours, are to be used both internally and externally. The external Applications of greatest Efficacy are, volatile, urinous Substances, mixed with Cephalics, the principal of which, in a liquid Form, is Spirit of Sal Ammoniac prepared with quick Lime, and impregnated with Oil of Rue, Marjoram, or Lavender; and, in a dry Form, dry volatile Sal Ammoniac sprinkled with the same Oils. These Medicines, either applied to the Nose in such a manner as their Effluvia may strike the Olfactory Nerves, or put into the Nostrils themselves on the Point of a Feather, or even blown up into them by means of a Quill, prove an excellent Stimulus, and rouse very effectually. For the same End, and with the same Intention, such Substances as excite a certain Sense of Pain, are generally applied to such Parts of the Body as are of a more exquisite Sensation, especially the Soles of the Feet; by which means the whole System of the nervous Parts is stimulated into a due and proper Contraction. This Intention is answered by pretty hard Frictions with rough Cloths, or the Flesh-brush, and by the Application of Nettles to the Parts. The Efficacy of Vesicatories, in this Case, is also very great, as also that of actual Cauteries, a new Method of using which has been described by *Dominicus Missicelli*, in a Treatise written in the Italian Language; and the Author's Method of Application is approved of by *Lancisi*.

But if the Power of Deglutition either remains with the Patient, or is restored after it is lost, spirituous and volatile Medicines are not to be prescribed internally; for these put the already raging Blood into a greater Commotion, and rarefy it more, and are upon that Account deservedly condemned in Cases of this Nature, by *Pitcairn de Circul. Sangu.* But such Medicines are to be prescribed as are of an analeptic, rousing, and discutient Quality; among which, the best and most approved are, fixed Diaphoretics with Cinnabar, Amber, and Nitre;

and these may be either exhibited in form of a Powder, with some proper Water as a Vehicle, or; which is still better, they may be reduced to the Form of a Potion: In the Course of my Practice indeed, I make more frequent Use, and more cordially approve, of this Mixture:

Take of the Water of Lillies of the Valley with Wine, and of distilled Vinegar, each two Ounces; of succinated Spirit of Hartshorn, one Dram; of Diaphoretic Antimony; Cinnabar, and Crabs-eyes, each half a Dram; Syrup of Orange-peel, two Drams; mix all together. To this we sometimes add a very small Quantity of Emetic Tartar, to give a gentle Stimulus to the small nervous Fibres of the Stomach, which have an Intercourse and Communication with all the rest. Yet Care must be taken not to exhibit it in such a Quantity as to procure a Vomit.

But because an Hæmorrhage of the Brain is not only very dangerous in itself, but also very subject to recur after it is cured, 'tis the Business of the Physician to employ all his Care and Skill both to carry off the Paroxysm, and to prevent its Return. Now *Caspar Hoffman*, [*Lib. 3. Instit. Med.*] with *Martianus* and *Ballonius*, rightly concluded, that all Apoplectic Patients were plethoric; therefore the Physician's chief Care must be to lessen the redundant Blood. For this Purpose letting Blood is proper at all Seasons, but especially about the *Æquinoxes*, when the Blood and Humours generally use to be in a preternatural Commotion, and Nature exerts her utmost Efforts to eliminate and throw out of the Body whatever is superfluous and prejudicial. For this very Reason, according to the Testimony of *Hippocrates*, the hæmorrhoidal Flux is in this Case salutary, and attended with happy Consequences, especially in those who have before had Discharges of that Kind. But first to procure, and then duly to promote, an hæmorrhoidal Discharge, are Circumstances that call for a great deal of Skill, Art, and Caution. For obtaining such a thing, besides Frictions of the Anus, and the Use of proper Fomentations, I think the Application of Leeches very proper; to which may be advantageously join'd a balsamic Elixir of corrected Aloes, Saffron, Myrrh, and Amber, prepared not with a spirituous, but with an aqueous lixivial Menstruum. The Balsamic Pills, if cautiously given, are very proper in this Case. But such Medicines as provoke an hæmorrhoidal Discharge, ought by no means to be administered, if the Patient is not disposed to Discharges of that Nature; they are only to be used when the Discharge begins to discover itself, or to flow too slowly; in other Cases they do more Harm than the Plethora itself, under which the Patient labours.

For preventing the Access of this Disorder, the due Excretion of the Fæces is of uncommon Efficacy; for 'tis almost a general Maxim in Practice, *That a Man cannot readily labour under Diseases of the Head, provided his Belly perform its Office duly.* This Discharge of the Excrements is by no means, however, to be procured by Medicines of too strong and drastic a Quality; since these, by operating too violently upon the nervous Coats of the Intestines, excite Spasms in them, and induce an unequal Circulation of the Blood. This End is rather to be obtained by Medicines, that are mild, gentle, and friendly to the Constitution; among which, the most proper and efficacious are, Preparations of Rhubarb with abstergent Salts; as also the *Pilule Polychrestæ*, and Clysters.

Those Waters and Balsams which are called *Apoplectic*, and by some highly extolled as proper, not only to be taken internally, but also applied externally, by way of Uction, to the Temples, Nostrils, and Nape of the Neck, are, in my Opinion very hurtful both as a Cure, and a Preservative against this Disease, in Cases where an Hæmorrhage of the Brain is dreaded, in plethoric sanguine Habits of Body, and in Persons in the Flower of their Age. The Testimony of *Dodmanus* [*Stirp. Historia, Lib. 6.*] is of considerable Weight in this Point: *When, says he, there is too great a Quantity of Humours, especially if mixed with the Blood, the Use of this Medicine, that is, distill'd Lavender-water, is not safe; neither is that Composition safe, which consists of distilled Wine, in which Herbs, Flowers, Seeds, and Spices of this Nature have been macerated, and which are rashly and indiscriminately prescribed by most People; since by the Use of those hot Medicines, which stuff the Head, the Disease is increased, and the Patient exposed to a more imminent Danger.* Far safer are Infusions by way of Tea, prepared of common Water and Cephalic Herbs, especially Baum, Betony, Sage, and the lesser Carduus, which, being frequently sipped, not only preserve an equal State in the Blood; but also refresh and comfort the Brain and Nerves.

But the Recovery and Safety of the Patient in such Cases is to be despaired of, unless a cautious and moderate Regimen be regarded to the Non-naturals, is carefully observed. For the Prevention, in Cases of this Nature, Rest and Abstinence are of wonderful Efficacy, since, according to *Celsus*, many of the Disorders may, by their means, not only be prevented, but cured. For this Reason, I moderate the Use of all the above



Dishes, are to be avoided; sweet and palatable Wines, all intoxicating Liquors, and severe Exercises of the Body, are also to be abstained from, especially after Meals: He who dreads this Disorder, should not go to Bed immediately after Supper; neither should he lie with his Head too low. If the Constitution is such, as to favour the Generation of this Disorder, the Body is not to be exposed to its Influences, but the Feet are carefully to be defended from the Cold, and sometimes immersed and washed in warm Water; and the Patient is to remain in a Chamber moderately warm. Gentle Motion is also to be used, the Mind is to be kept calm and serene, and Sleep is neither to be too long, nor too short. In a word, all those things are to be carefully avoided and abstained from, which we have above rank'd among the procatactic Causes of this Disorder.

## C A S E I.

An illustrious Count, almost fifty Years of Age, and full of Blood and Juices, was some Years ago afflicted pretty often with a milder Species of Palsy, accompanied with a Difficulty of Speech. For the Cure of these Disorders he went to the *Caroline* Baths, which lay contiguous to his Estate, and used them both internally and externally. But as he did this without the Advice of his Physician, and had neglected to prepare his Body for it by proper Evacuations, such as letting Blood, and purging; it happened, that having gone into a Bath, which was as yet too warm, he was suddenly deprived of all Senses, both internal and external. Immediately upon this Accident, he breathed quick, his Breast heaved with a sort of convulsive Motion, his Arteries beat strongly with a certain kind of Hardness, and his Face became prodigiously red. A Vein was opened, and a Sternutatory apply'd to his Nostrils; by which means a more terrible convulsive Concussion of his Breast, together with a violent Stertor, were brought on. His whole Left Side became destitute of all Sensation and Motion; but the Hand of his Left Arm, being convulsed, shook continually. His Reason utterly left him, and, within five Hours, he died; and after his Death, a large Quantity of Blood, and bloody Serum, flow'd from his Nostrils for the Space of twenty-four Hours, or more.

## R E F L E C T I O N.

If any of the Mineral Waters, used by way of Bath, require Prudence and Circumspection in their Use, the *Caroline* certainly do; for these are of such a Quality as strongly to contract the Surface of the Body, and drive the Blood and Humours to the internal Parts, by that earthy, calcareous, and even chalybeate Principle, with which they abound. And this is the very Reason why they so speedily carry off oedematous Swellings of the Feet, and bring on, if the Body is subject to Spasms, and the Vessels turgid with Blood, violent Pains, vehement Palpitations of the Heart, acute Pains of the Head, Loss of Strength, Weakness of the Joints, and even continued and intermitting Fevers. We need not therefore wonder, if in this illustrious Person, whose Mass of Blood was already too large, and whose Humours were even thus disposed to stagnate in the Brain, the Blood was, by a rash and inconsiderate Use of the *Caroline* Waters, driven with an Impetus to the Head, and both its internal and external Vessels burst; a Circumstance which could not fail to cause the immediate Death of the Patient. This is plainly proved by that large and copious Effusion of a bloody Matter from his Nostrils, which always sufficiently discover a previous Hæmorrhage in the Brain. And since his Stertor and Difficulty of Breathing increased upon the Application of Sternutatories; this should teach Physicians to be wary and circumspect in applying such things as promote Sneezing in sanguine *Apoplexies*, and that too even after the impetuous Motion of the Blood to the Head is allay'd, lest the Blood should rush with too great Violence to the stimulated Parts, and hasten the Death of the Patient.

## C A S E II.

A Gentlewoman of fifty Years of Age, of a sanguine, but at the same time of a very delicate and tender Constitution, had always had her monthly Evacuations in a very plentiful and copious manner. But about the forty-ninth Year of her Age, this Discharge happening according to the Course of Nature to stop, she began to complain much of an Uneasiness and Straightness about her Præcordia, an Inflation in the Left Side of her Abdomen, a painful and flaccid State of her Joints, a vertiginous and heavy Pain of her Head, and unsound and interrupted Sleep, tho' her Countenance all the while remained very florid and ruddy. The Winter at last approaching, all these Symptoms were so heightened, that she was reduced to a Necessity of calling a Physician, who, in order to discuss her Flatulencies, prescribed her *Volatile oily Salts*, and *Carminative Essences*. He likewise ordered her a purging Powder, consisting of half a Scruple of Resin of Jalap, and six Grains of vitriolated

Tartar. With which after she had purged six times, and that not without terrible Gripes, she was next Night seized with an *Apoplectic* Fit, but her Pulse remained in its ordinary State, and her Breathing was free. For her Relief, a Vein was forthwith opened, and an acrid Clyster injected, by which means she was indeed recovered from her *Apoplexy*; but an *Aphony*, and a great Weakness of her Head, still remained with her. Her Physician, in order at once to carry off these Symptoms, and the Remains of her other Distemper, ordered her a purging Powder of twelve Grains of Resin of Jalap, and ten Grains of vitriolated Tartar, to be taken in Water of Lillies of the Valley as a Vehicle. But scarce an Hour after the taking of this, the *Apoplexy* return'd, and kill'd the miserable Patient.

## R E F L E C T I O N.

Women of sanguine Constitutions are, upon the Cessation of their monthly Evacuations, very much inclined to an *Apoplexy*, and therefore stand greatly in Need of Venesections, lest, by the Concurrence of other Causes, the Disposition should break forth into the Distemper itself; and, indeed, if any thing is effectual for making it do so, it is undoubtedly the Use of the stronger Purgatives, and such Medicines as excite Gripes. Among which we may, for its many fatal Effects, justly reckon that pernicious Medicine *Resin of Jalap* exhibited in Powder; for, when taken into the Stomach, it easily runs together, and adhering to the Folds of the nervous Coat of the Intestines, it quickly excites Spasms, and painful Tensions, by which the Blood is forced to the superior Parts, and produces the most fatal Effects. Hence 'tis plain, that the Physician committed an egregious Blunder, since upon the Approach of a gentle *Apoplexy*, which remitted, he repeated this Purgative in so large a Dose, as not only to bring on a Relapse, but even Death. And though the Intention of drawing the noxious Humours to the inferior Parts does not at all seem inconsistent with a rational Practice, yet it ought to be done by mild Laxatives, or even Clysters, and not by such Medicines as induce sensible Spasms on the Intestines, which may be discovered by the Gripes, and by that means force the Blood to the Head in such a Quantity, that it bursts the Vessels, and produces present Death.

## C A S E III.

A certain Divine of a great Character, not quite fifty Years old, of a florid and sanguine Constitution, and who had always enjoyed a sound and vigorous State of Health; by means of a certain Accident, which hurt his Character and Reputation, fell into a violent Perturbation of Mind, accompanied with Sadness, and the most uneasy Sensations. Being thus disturbed, and sleeping very little, he thought proper to cheer his Mind, and dispel his Melancholy, by a pretty liberal Use of Wine, which indeed he loved too much before. In Process of Time he lost his Appetite for Food, and his Digestion being very bad, he was troubled with continual Eructations without any Discharge of Flatulencies from his Belly, which was costive; his Strength began to be impaired, he was seized with a terrible Pain and Straightness about his Præcordia; and, mournful and distracting Thoughts unhinging his Mind, at last, he suddenly and unexpectedly fell down with the total Loss of his Senses, his Pulse and Respiration remaining at the same time entire. But about two Hours, after proper Remedies being applied, his Strength returned in some measure, and he came to himself; but began to complain terribly of a Weakness in his Knees, a Torpor and Languor of his Right Side, and a Loss of Memory. Of his own Accord he went to the *Caroline* Baths, not only with a View to carry off his hypochondriac Disorder, but also to banish from his Mind all melancholy and perplexing Thoughts by the Journey and Conversation. As I was in the Place, he earnestly asked my Advice, and I ordered him to drink moderately of that temperate Spring, commonly called *Mublen-Brummen*, which he used with great Success for about twenty Days. But in his Return home, when he was passing through a noted Town, being invited to a splendid Entertainment by his Friends, he indulged his Palate, and drank too much Wine: And going home in the cold Night Air, he began to complain of an Uneasiness and Difficulty of Breathing; upon which he took some diaphoretic Powders, by the Use of which, a red Purple Fever began to appear almost over all his Body. But, complaining of an insupportable Pain of his Head, his Physician judged Venesection in the Foot proper; and, taking my Advice about the Propriety of this Step, I declared myself against it, for fear of striking the Purple Fever back to the internal Parts. But the Physician insisting much on the bad Consequences that might attend the Neglect of Venesection, it was accordingly performed in the Foot, and a sufficient Quantity of Blood taken away. Soon after, the Uneasiness about his Præcordia increased, the Extremities of his Body became cold, and, the Purple Fever disappearing, a violent *Apoplectic* Fit unexpectedly ensued, accompanied with the Loss of all his Senses, Stertor, a strong and unequal Pulse, and a red  
and



and tumid Countenance; by the Violence of which Disorder this learned and ingenious Clergyman was, in eight Hours time, convey'd into another World.

## R E F L E C T I O N.

There are many Circumstances in this Case, the Observation of which may be of Use for directing a Man in the pathologic and therapeutic Parts of Physic: And, first, we may observe, that in a Man of a sanguine Constitution, when to long and excessive Sorrow, a bad Regimen, and especially the immoderate Use of Wine, are joined, the nervous System may be so weaken'd, as to induce hypochondriac Symptoms of such a Nature, as would not have otherwise, in all Probability, seiz'd a Constitution of that Kind. It is also to be observed, that by a long-continued, perplexing, and uneasy State of Mind, accompany'd with Sorrow, the Brain and nervous System may be so weaken'd, as to become disposed and subject to *apoplectic* Fits. Besides, in the Case now under our Consideration, the first Fit was slightest and most gentle, since it proceeded only from the Blood being forced to the Head from the lower Belly, by means of the Spasms there excited, and might have been soon carried off by Venesection, which would have resolved the Blood stagnating in the Vessels of the Brain: But because no Indisposition is more apt to recur than an *Apoplexy*, especially if it is not averted and guarded against by a due Regimen, and proper Medicines, hence it happen'd, that a due Regimen not being observed, after the Use of the *Caroline* Baths, which are indeed excellent in hypochondriac Cases, but very improper in Disorders of the Head, a more violent Fit ensued, which, in the present Case, proved fatal to the Patient; which was undoubtedly owing to the large Quantity of Blood taken away, by which means the Matter of the Purple Fever being struck into the internal Parts with great Violence, excited such Spasms as forced the Blood impetuously to the Head, and at last broke its Vessels internally. *Hoffman, Vol. 2.*

## C A S E I V. From C. PISO.

One *Claud Dionis*, a Citizen and Taylor of *Pont-à-mousson* in *Lorraine*, a Man of a slender Make, black Hair, and, like the Generality of City-tradesmen, accusom'd to Intemperance and high Feeding, happen'd in the Year 1663. after a Debauch of Wine, to drop down suddenly, and lose all Sense and Motion: He at that very time became speechless; but his Respiration, tho' it continued with him, was nevertheless unequal, disorder'd, and intermitting, tho' not high, and accompanied with Stertor. After he had thus remain'd speechless for four Days, and was concluded *Apoplectic* by every one who saw him, he at last recover'd on the fourth Day; rather, I suppose, by the peculiar Interposition of Heaven, than by the Influence of Medicines, which, in Cases of this Nature, either cannot be exhibited at all, or, if exhibited, generally produce no Effect, on account of the Oppression under which the sensitive Faculties labour. But tho' the Patient recover'd thus far, the morbid Matter was nevertheless, by a salutary Translation, deposited not only on the Middle of the Spine, by which Accident the Trunk of his Body became paralytic, but also on those Branches of the Seventh Pair of Nerves which run to the Tongue, by which means a Stammering in his Speech still remain'd. His Palsy was, by proper Care and Warmth, so far remov'd, that a few Months after he was able to go abroad, and stand at the Church-doors, in order to receive the Charity of tender-hearted Christians: But about a Year and a half after, when this miserable Creature had lost the Use of his Limbs, and betaken himself to his Bed, he was soon cut off by a Fever, the particular Nature of which I know not.

## C A S E V. From C. PISO.

In the Year 1663. about the Beginning of September, a certain Citizen and industrious Tradesman of *Pont-à-mousson*, happening to return drunk from a neighbouring Town, dropp'd down in the Middle of his Journey, lost all Sense and Motion, and lay prostrate on the Ground for three Days: However, being found on the third Day, and carried home, he indeed recover'd his Senses, but at the same time lost the Power of moving the middle Part of his Body, and his Right Side; nor is the Use of these Parts as yet restor'd to him, tho' four Years are now elapsed since that Symptom appear'd; besides, he hesitates in his Speech, and walks with Difficulty. 'Tis also to be observed, that, in this Patient, the paralytic Parts were always moist with Sweat.

## C A S E VI.

I remember, that about ten Years ago, on the Confines of the Bishoprick of *Metz*, a Lady of Distinction, the Wife, if I rightly remember, of Mr. *Helmestat*, became paralytic after an *Apoplectic* Fit; which returning some Months after, put a final Period at once to her Palsy, and her Life.

The Duchy of *Lorain* is, indeed, so very fruitful in Disorders of this Kind, that there are few of its Towns or Villages, in which the remarkable Changes of Weather, that happen du-

ring the Winter-season, do not suddenly and unexpectedly strike and cast down some of the Inhabitants in this sudden manner.

But whether the frequent Surfeits of the Inhabitants, or the damp and moist Nature of the Climate and Air, produce this Disorder separately; or, which is more probable, whether they concur, and join their united Forces on this Occasion, are Disquisitions I shall not, at present, enter upon; neither shall I launch out into the more abstruse Theories relating to this Disorder, and its several Symptoms, since these Things have already been set in a Light sufficiently clear. I shall therefore only observe, that there are three Species of *Apoplexy*; a very strong and violent one, which instantaneously suffocates and kills the Patient; one of a milder Nature, which renders the Patient's Respiration violent, difficult, and high, and which is by some distinguish'd into two Sorts, differing rather in Degree than Nature; and one of a very slight and gentle Kind, in which the Patient breathes with some Labour and Difficulty. The first of these, or the most violent Kind of all, proceeds from a mucous Humour, either alone, or more frequently intermix'd with Serum, but in such a Proportion, that the former much exceeds the latter: The slight and gentle Kind, on the other hand, proceeds from Serum, either alone, or intermix'd with a very small Quantity of Mucus, so that the former may predominate much over the latter. The intermediate Species proceeds from a Mixture of both of these, almost in an equal Quantity: And, indeed, this Theory is confirmed by the following Observation:

## C A S E VII.

About the Year 1600. *Stephen Ruiffau*, the Son of a noted Advocate, and a Youth about twelve Years of Age, about the Winter Solstice, suddenly dropp'd down without any Sense or Motion, except a convulsive one, which soon after seiz'd him, and which was immediately follow'd by a Stertor. In this Case we try'd very few Medicines, because we concluded the Patient irrecoverable: Accordingly he was suffocated by the Violence of the Distemper, about twelve Hours after it had seiz'd him; and, to the no small Surprise of all who saw him, died discharging a mere, but frothy Mucus from his Nostrils in large Quantities, and not Drop by Drop, which is the Case in old Disorders of the Lungs; so that we had no Reason to believe, that it came from his Thorax: For altho' those who labour under a *Peripneumony* may, by the Violence of the Stertor, discharge a purulent Matter from their Nostrils, yet that Matter is not frothy, nor yielded in great Plenty; but is of a pretty good Consistence, and comes away Drop by Drop: This Circumstance is, perhaps, owing to the Length and Acclivity of the Way thro' which it has to pass, and the Agitation of its Parts ceasing sooner than in the mucous Humour flowing from the Head.

I also know, that an *Apoplexy* may arise not only from Concretions of Blood in the Head, but also from the Blood being rendered too liquid: Thus, I heard of a certain Person who dropp'd down *Apoplectic*, and died on the Spot, in Consequence of his hanging his Head down, and sleeping before a Fire. And about three Years ago, I myself saw the Son of *Arnulphus Richards*, when, on the Day of Intermision in a Tertian Fever, he had exposed himself for some time to the scorching Heat of the Sun, during the Dog-days, suddenly become *Apoplectic*, and that to such a Degree, that he died the following Day. *Carol. Piso. Observat. Select.*

From BOERHAAVE.

In an *Apoplexy* the Patient is suddenly deprived of the Exercise of all the Senses, both external and internal, and of voluntary Motion, whilst the Pulse, which is generally strong, remains, together with a laborious and deep Respiration, attended with a considerable Elevation of the Breast, with a Stertor, and the Appearance of a profound and perpetual Sleep.

A Multitude of the most accurate Observations have made it appear, that this Disorder arises from whatever Cause is capable of preventing, either totally or in part, the Influx of the nervous Fluid, secreted in the *Cerebrum*, to the Organs of Sense and voluntary Motion, and the Reflux of the same Fluid from the above-mention'd Organs to the common Sensory in the Brain; whilst the Progress, and perhaps the Return, of the Fluid, supply'd by the *Cerebellum*, to and from the Heart, and Organs of Respiration, is preserved in a Degree sufficient to support, in some measure, their Functions.

All these Causes, as observ'd and deliver'd by Authors, may, for the greater Perspicuity, be reduced to Classes; in the first of which may be reckon'd,

1. The natural Make of the Body: Thus, when the Head is naturally large, the Neck short, and, as it sometimes happens, consisting only of six Vertebrae, whereas there ought to be seven, this Structure disposes to an *Apoplexy*, as it favours the Congestion of Blood and Humours in the Head. Thus also, if the Body is corpulent and fat, the capillary Arteries in general will be subject to Compressions; and, in Consequence thereof, a greater Quantity of Blood and Humours will flow into the Vessels which convey them to the Brain. Thus also, a plethoric Habit, and a Redundance of pituitous Humours in the Blood,



lay a Foundation for the Stagnation of the Juices, and a subsequent Rupture of the Vessels in the Brain.

2. To the second Class belong all those Causes which induce such a Change in the Blood, Lymph, and nervous Fluid, as to render them incapable of circulating freely thro' their respective Vessels in the Brain. Amongst these are,

Polypous Concretions in the Carotid or Vertebral Arteries, whether form'd originally about the Heart, or within the Cranium; which are discover'd by a Palpitation of the Heart, an unequal Pulse, a Vertigo, and temporary Loss of Sight, often recurring, and which are increas'd by Motion or Heat.

An inflammatory Siziness of the Blood, which may be known by an acute continual Fever, a Phrenitis, a considerable inflammatory Pain in the Head, which have affected the Patient some time before the Attack of the *Apoplexy*: Add to these, all those Signs which evince, that the Blood, upon being prevented from circulating duly in the Vessels of the Brain, in Consequence thereof, is carry'd in greater Quantities, and with greater Force than usual, thro' the external Branches of the Carotids; whence a Redness, Fullness, and Inflammation of the Eyes, Face, and Neck, together with an involuntary Discharge of Tears.

A thick, glutinous, pituitous, and sluggish Disposition of the whole Mass of Blood; whence old People, those who are much subject to Catarrhs, whose Constitutions are cold and moist, and who are pale and leucophlegmatic, are very subject to *Apoplexies*. It is not difficult to preface an *Apoplexy* from this Cause, as it is generally preceded by an universal Listlessness, and Dulness of the Senses; Sleepiness; Inactivity, with respect to all manner of Motion; unusual Slowness of Speech; Tremors, Stertors, Incubi (*Night-mares*); Paleness, Turgidness, Humidity, and Dimness of the Eyes; frequent Discharges of pituitous Humours by Vomit; Vertigos; Shortness of Breath upon the least Motion, with a Compression of the Cartilages of the Nose. Such a State of the Blood is produced and increased by all the Causes related under the Article *LENTOR*, which see.

3. To the third Class belongs whatever compresses the Arteries themselves, or the nervous Vessels of the Brain, so as to prevent a free Circulation of their respective Fluids through them.

People who are plethoric, that is, full of Blood, and bloated with bad Humours, are much subject to this Species of *Apoplexy*; especially if extraordinary Motion or Heat increase the Velocity of the Circulation. Hence it is apparent, that the Disorder must be promoted in such Constitutions by high Feeding, and spirituous Liquors; Medicines which are acrid, and excite the Motion of the Blood, such as Cardiacs, Volatiles, and Emetics; by excessive Heat and Motion; and by Intenseness of Thought, especially if long continued, and frequently repeated, because this determines a more copious Flux of Humours towards the Brain.

All Tumors also arising within the Cranium properly belong to this Class, whether they are inflammatory, purulent, serous, pituitous, steatomatous, scirrhus, or bony, provided they compress the Arteries, or the venous Sinuses near the *Torcular Herophili*, or the medullary Origins of the Nerves, or the *Medulla* of the Cerebrum itself.

To this Class also belongs too great a Velocity of the Blood in the Vessels of the Head, determin'd to that Part by some Impediment to the Circulation of the Blood in the Arteries of the inferior Parts, which may arise from an infinite Number of Causes.

Hither also may be referr'd all Compressions, from whatever Cause, of the Veins without the Head, which convey the reffluent Blood from the Contents of the Cranium towards the Heart: As also Effusions of Blood, Pus, Ichor, or Lymph, which press externally upon the *Dura* or *Pia Mater*.

4. To the fourth Class belong all those Causes, which, by any means, so dissolve the Texture of the Arteries, Veins, or Lympheducts belonging to the internal Part of the *Cerebrum*, as to cause an Extravasation of their respective Fluids, which then press upon and injure the Medullary Origins of the Nerves of the *Cerebrum*. Such, for Example, are an acrimonious Serum in hydropic and leucophlegmatic Cases; a Redundance of Blood in a Plethora; an atrabilarious Acrimony prevalent in melancholy, scorbutic, and arthritic Constitutions, which frequently produces an *Apoplexy*, and usually operates betwixt the fortieth and sixtieth Years of Life: Now, all these may remain latent in the Constitution for some time; but, upon being excited by adequate Causes, they frequently are productive of a sudden *Apoplexy*; which may be foreseen, by comparing the Materials subsisting in the Constitution with the Causes capable of exciting them to Action, which are principally violent Affections of the Mind, and intense Studies; to which, perhaps, imprudent and excessive Venery may be added.

5. Some Sorts of Poisons, which are suddenly deleterious, may be rank'd in the fifth Class; but these may either be reduced to the second, third, or fourth; or may be more properly said to act upon the Lungs than the Brain. Amongst these are, the Fumes of Mineral Sulphurs, of Charcoal, and that

*Gas Sylvestris*, or incoercible Spirit, which exhales from vegetable Juices, during Fermentation.

The Anatomical Inspection of Bodies which have died of *Apoplexies*, and the historical Observation of such Circumstances as occur in the Treatment of such Cases, furnish us with a Knowledge of these Causes; and a due Reflection upon these naturally leads us to a Distribution of them into the preceding Classes, which are admirably adapted to the Investigation of the best Methods of Cure.

See the *Observations and Histories* in this Article.

Hence it appears, that *Apoplexies* are produced by various, and those opposite, Causes; and therefore they may be properly enough distinguish'd into *sanguinous* and *pituitous*; tho' this Distinction is far from being perfect, since, besides these, there are *serous*, *atrabilarious*, *polypous*, and other Species of *Apoplexies*.

The Part affected, in a perfect *Apoplexy*, is the entire *common Sensory* in the Brain, but in a *Parapoplexia* some Parts of the *common Sensory*, which are more compress'd than the rest; whilst the *Cerebellum* and its Dependencies remain, in the Beginning of the Disorder, unaffected.

Now as the *Cerebrum* supplies the Instruments of Sensation, and voluntary Motion, with their Portions of the nervous Fluid; and as the Heart and Organs of Respiration are furnish'd from the *Cerebellum*, the Reason is obvious why the Pulse and Respiration remain, whilst the Senses and voluntary Motion are destroy'd; and why even the Pulse and Respiration increase, in proportion as Sensation and Motion decline; for it generally happens, that the nearer the Patient is to Death, the greater is the Pulse and Respiration, which is to be accounted for thus: When there is a considerable Obstruction in the *Cerebrum*, the usual Quantity of Blood cannot circulate therein; and as the same Quantity is still brought by the Carotids from the Heart, the remaining Part of that which should circulate thro' the *Cerebrum*, must now circulate thro' other Parts of the Head: Hence an Inflation and Redness of the Cheeks, and Foaming at the Mouth, caused by a greater Quantity of Fluids circulating thro' the Branches of the external Carotids; and because a greater Quantity of Blood is determin'd, by this Obstruction in the *Cerebrum*, to the Vessels of the *Cerebellum*, a greater Quantity of Spirits must be there secreted; and as these Spirits are subservient only to the vital Functions, the Pulse and Respiration must necessarily increase.

The Violence, therefore, and Danger of an *Apoplexy*, is to be estimated by the Age, Constitution, and Make of the Patient, by the Vehemence of the Symptoms, and principally by the absolute Privation of the Senses and voluntary Motion, by a strong and profound Respiration, attended with a Stertor, by Plenty of viscid Froth about the Mouth, by a slight cold Sweat, which sticks in Drops upon the Skin, by its being consequent to a former slight *Parapoplexia*, or a violent Epilepsy, or any other vehement Cause.

On the contrary, an *Apoplexy* which is moderate, and admits of a Cure, may be distinguish'd by the Slightness of the Symptoms, and the Absence of those Accidents above enumerated.

If a copious Sweat, which is equal all over the Body, dewy, warm, and which relieves the Symptoms, supervenes in a slight *Apoplexy*, it resolves the Distemper; for by this the stagnating Matter, which obstructs the Nerves destin'd for Sensation and voluntary Motion, is carry'd out of the Habit, being first attenuated by the vital Powers.

The same salutary End is accomplish'd by a plentiful Discharge of thick Urine, and for the same Reasons.

The morbid Matter is also carry'd off, and the Distemper is cured, by a large and long-continued hæmorrhoidal Discharge; and, in Women, by a Resumption of the Menstrual Flux.

The Disorder is also removed sometimes by a Diarrhœa; and a violent Fever supervening, especially in the Beginning of the Distemper, attenuates and removes the obstructing Matter, disposes it to Elimination, and by these means sometimes restores the Patient. A slight Fever, however, not sufficient for the Attenuation and Removal of the morbid Matter, is of bad Presage: But a Fever seems principally of Service in that Species of *Apoplexy* which is caused by a Viscidity of the Juices, because Attenuation is more wanted here than in the other Sorts.

When the Cause of a somewhat more severe *Apoplexy* is in some measure removed, the Distemper is changed into a Palsy of some of the muscular Parts; of one entire Side, which is call'd an *Hemiplegia*; or of all the Parts below the Neck, which is call'd a *Paraplegia*. These are said to happen during the four first Days, and seldom admit of a Cure, and always impair the Memory, Judgment, and the Power of voluntary Motion: Hence the Patients remain for ever after heavy, dull, pusillanimous, and are affected with Tremors, and frequent Vertigos.

A perfect *Apoplexy*, wherein the *Cerebrum* is much injur'd, the Fluids are corrupted, and the Cause of the Disorder is propagated to the *Cerebellum*, soon terminates in Death, and seldom exceeds the seventh Day.

And



And it is a Maxim laid down by Authors, that if an *Apoplexy* remains unresolv'd beyond the fourth Day, the Patient dies, unless reliev'd by a violent acute Fever, before the seventh.

An *Apoplexy* may be foreseen, first, from the natural Constitution, Frame, and Make of the Patient.

Secondly, from a Knowledge of the predisposing Causes, or Materials in the Blood and Juices, capable of producing the Disorder, when excited to Action.

Thirdly, from the Procatartic Causes, which are those which excite the predisposing Causes to Action.

All these have been already specify'd.

Fourthly, from the first Effects of these Causes, as a Tremor, Vacillation, Vertigo, temporary Loss of Sight, Stupor, unusual Sleepiness, Depravation of Memory, Ringing in the Ears, Inflation of the superior Parts, Respiration more profound than ordinary, Compression of the Pinnæ of the Nose, and a frequent Incubus.

What has been said above, will enable us to know an *Apoplexy* when it occurs, and to distinguish its different Degrees.

As to the Cure and Prevention of an *Apoplexy*, no universal Rules can be laid down; for as the predisposing and exciting Causes, together with the Parts principally affected, are various, the Method of Relief must also vary; and must be attempted before the Disorder grows inveterate, otherwise it will be difficult to do it with Success.

If, therefore, an *Apoplexy*, from a glutinous, inert, cold Cause, is foreseen from the Signs above specify'd, the Intentions must be directed, first, to avert the Pressure of the glutinous Juices from the Head.

Secondly, to attenuate the glutinous Viscidity in the Brain, and in the whole Habit.

The Pressure on the Vessels of the Brain is diminish'd,

First, by a Derivation of the Humours to other, and those opposite Parts.

Secondly, by universal Evacuations.

A Derivation of the Humours is effected by Vapours, Fomentations, and Baths, apply'd to particular Parts, to which it is intended the Humours should be invited; by Suction, with Cupping Glasses; by Sinapisms, and Vesicatories, among which Cantharides are of great Importance, as they both invite the Humours to the Part where they are apply'd, and attenuate at the same time; by Caustics, Issues, Setons, and Frictions; by Ligatures made upon the large Veins of the Feet, Legs, and Thighs. To these may be added Collutions, Gargarisms, and Masticatories, which excite a Discharge of Saliva, and Apoplegmatisms apply'd to the Mouth, Fauces, and Nose.

*Boerhaave*, in his *Materia Medica*, gives the following Forms:

Take of the Roots of Masterwort, Pellitory of *Spain*, Galangals, each an Ounce; of the Leaves of Origanum, Rue, Thyme, each an Handful; of the Flowers of Lavender and Feverfew, each an Ounce; of the Cortex Winteranus, six Drams: Boil these in a close Vessel, in a Quantity of Water sufficient for three Pints of strain'd Liquor; to which add of Spirit of Sal Ammoniac, three Ounces. Let this be used as a Collution or Gargarism.

Take of Mastich, white Wax, and Ginger, each an Ounce; and make them up into small Troches, which must be chew'd in the Mouth by way of Masticatory.

Universal Evacuations are procur'd by strong Emetics and Cathartics, exhibited in sufficient Doses; by Scarification and Bleeding; tho' the Efficacy of these is not always to be depended on.

Proper Forms of Emetics and Cathartics recommended by *Boerhaave*, are as follows:

Take of Emetic Wine, two Ounces and an half; simple Oxymel, an Ounce: Mix for a Vomit.

Take of Emetic Tartar, seven Grains; for a Dose.

Take of the express'd Juice of Horse-radish, an Ounce; simple Oxymel, two Ounces: Make a Draught.

Take of Mercurius Vitæ, two Grains: For a Dose.

Take of Diagrydium, Resin of Jalap, each ten Grains; rectify'd Spirit of Wine, two Drams: Let them be carefully rubb'd together, till the Diagrydium and Resin are dissolv'd; and then add Solutive Syrup of Roses, with Sena, six Drams: Make a purging Potion.

As to Bleeding in this Species of *Apoplexy*, some Authors advise it, others oppose it; for my own part, I think this should be determined by the Fullness of the general Habit, and Quantity of Humours to be evacuated; so that the Sagacity and

Prudence of the Physician must suggest to him Reasons for directing it, or omitting it.

After these Derivations and Evacuations, the Lensor or glutinous Viscidity of the Juices is to be attenuated and dissolv'd by Remedies adapted to that Purpose. Amongst these, a Regimen with respect to Aliment cannot be of any great Effect in curing an *Apoplexy*, because there is not sufficient Time for it to operate; but for the Prevention of one it may be of singular Use: It ought therefore to consist of both solid Foods and Liquids, which have had their natural Viscidity perfectly destroy'd by Fermentation, and which are seasoned with Salt and Aromatics; this supposes them to be of vegetable Substances, because no other will ferment, properly speaking. Salts of all Kinds are here of Service, because they stimulate the Solids, and excite the languid and almost stagnating Juices to Motion, the ready Means for their Attenuation. For the same Reasons aromatic Vegetables, and their essential or chymical Oils, are here of Importance; on which Account the *Balsamum Apoplecticum*, describ'd at the End of this Article, has been in great Esteem, but seems to have grown into Disuse thro' its frequent Misapplication; for all these stimulating Remedies are capable of producing great Mischiefs, in Apoplexies, from a real Extravasation, a distending Plethora, or an inflammatory State of the Blood. Broths made of Fowls may be also allow'd, because they are Destroyers of Acids, which are great Promoters of Coagulation and Viscidity.

Adding Strength to the Vessels and Viscera, increasing the Motion of the Fluids, diluting, resolving, stimulating, bilious, and saponaceous Medicines, Frictions, Heat, Baths, and Vesicatories, all contribute to the Attenuation of the glutinous Viscidity above mentioned. These are more fully treated of under the Article LENSOR, which see.

These, however, must be used with great Care and Caution, because most of them may be productive of great Evils, and increase the Disorder they are intended to cure, if apply'd at an improper Season, that is, without previous Derivation and Evacuation, or suffer'd to act with too much Violence.

External Topics to the Head, which stimulate, evacuate, or resolve, are not to be omitted. But of all Remedies, Blisters raised by Cantharides are of the greatest Service.

In case an *Apoplexy* from this Cause is already form'd, it seldom admits of a Cure: However, the Remedies above-mentioned should be try'd; and every thing that is likely to excite the Senses should be apply'd to the Nose, Mouth, and Head; the most acrid and stimulating Remedies are to be used; and Stools must be procured by acrid Clysters. *Celsus* directs white Hellebore, one of the most stimulating Medicines we are acquainted with.

*Boerhaave* specifies the following Forms:

Take of Tincture of Castor, and Spirit of Sal Ammoniac, each two Drams: Apply this frequently to the Nose.

Take of the sharpest Vinegar, and Tincture of Castor, each two Drams: Apply this in the same manner.

Take of the Chymical Oils of Rosemary, Tansey, Lavender, Rue, Wormwood, each four Drops; Tincture of Castor, a Dram; Nerve Ointment, an Ounce; Sal volatile oleosum, a Dram: Mix, and make a Balsam. Let the Vapour of this be received into the Nostrils, and let the Temples be rubb'd with it.

Take of the Pulp of Colocynth, half a Dram; of the Leaves of Tobacco, a Dram and an half: Boil these in a sufficient Quantity of Water for ten Ounces of strain'd Liquor; to which add of Sal Gem two Drams. Make a Clyster.

From FULLER.

Take of the Root of Pellitory of *Spain*, half an Ounce; of the Leaves of Rue, two Handfuls; of the Pulp of Colocynth, ty'd in a Rag, half a Dram: Boil these in a Quantity of Water sufficient for twelve Ounces of the strain'd Liquor; to which add of the Infusion of Crocus Metallorum, three Ounces; Tincture of Castor, half an Ounce; Oil of Amber, Sal Gem, each two Drams: Make a Clyster.

It must, however, be confess'd, that the Disorder is frequently increased by all these intended Remedies, the Motion of the offending Matter being augmented, and more strongly impell'd upon the affected Parts, by every thing which stimulates: Mean time the Strength would be too much impair'd by further Evacuations. Hence appears the Reason, why, in procuring a Dissolution of the glutinous Juices, all possible Regard is to be paid to Evacuation and Revulsion. Hence also it is evident, why Bleeding, if it does not relieve, destroys the Patient.

But



But if by the Signs above mentioned it is perceiv'd, that an *Apoplexy* is threaten'd, by an inflammatory Sickness of the Blood ; by a Plethora, or Rarefaction of the Blood ; or by too great a Velocity of the Blood in the Head, determined thither by any Cause whatever, immediate Recourse must be had to such Remedies, as most expeditiously evacuate, resolve, and avert the Blood from the Head.

1. Therefore let a considerable Quantity of Blood be taken from the Jugular Veins by a large Orifice ; and let this be repeated as Occasion requires. By this the Patient is generally much reliev'd immediately, if the Case is such as will admit of a Cure. See *ARTERIOTOMIA*.

2. The next Step is to give a considerable Dose of an Antiphlogistic Purge, which must be repeated in such a manner, that an almost perpetual Diarrhoea may be excited ; and if these Cathartics do not exert their Effects soon enough, their Operation must be promoted by acrid Clysters.

Antiphlogistic Purges recommended by *Boerhaave* are :

Cream of Tartar, in the Quantity of six Drams.  
Crystals of Tartar, in the same Dose.  
Crude Tartar, in the same Dose.  
Sal Polychreston, in the Quantity of five Scruples.  
Pulp of Tamarinds, in the Quantity of three Ounces.  
Tamarinds, in the Quantity of four Ounces.  
Rob of Elder, in the Quantity of four Ounces.  
Rhubarb, in the Quantity of a Dram and an half.

Take of choice Rhubarb, a Dram ; Sal Polychreston, thirty Grains ; Syrup of Succory, with Rhubarb, an Ounce : Mix these well together ; and then add of Elder-flower Water, two Ounces ; small Cinnamon-water, two Drams. Make a purging Potion.

Take of choice Pulp of Cassia, two Ounces ; Crystals of Tartar, three Drams : Mix these, and let the Patient take a Dram every quarter of an Hour, till he purges sufficiently.

Take of the Leaves of choice Sena, with the Stalks, two Drams ; of the best Agaric, a Dram ; of choice Tamarinds, two Ounces : Boil these for a quarter of an Hour in a close Vessel, in a sufficient Quantity of Elder-flower Water for five Ounces of the strain'd Liquor ; to which add of purify'd Nitre, a Dram ; solutive Syrup of Roses, with Sena, six Drams. Make a purging Potion.

Take of the Leaves of Sena, three Drams ; Tamarinds, two Ounces ; Agaric, three Drams : Boil for a quarter of an Hour in a Quantity of Water sufficient for one Pint of the strain'd Liquor ; to which add Syrup of Succory, with Rhubarb, an Ounce. Let the Patient take an Ounce every half Hour, till it purges him.

Forms of Purges somewhat stronger, and more stimulating :

Take of Agaric, two Drams and an half ; Sal Polychreston, a Scruple. Mix for a Purge.

Take of the internal Bark of Elder, or Dwarf-elder, an Ounce : Contuse this with a sufficient Quantity of Rain-water ; then boil them a little, and press out four Ounces of the Liquor, which administer for a Purge.

Take of Agaric, two Drams ; Leaves of Sena, three Drams ; Root of Mechoacan, a Dram ; Tamarinds, two Ounces : Let these Ingredients be cut and bruised, and then macerated in a sufficient Quantity of Rain-water for half an Hour ; then boil gently for seven Minutes ; and to nine Ounces of the strain'd Liquor, add of Sal Prunellæ, half a Dram ; solutive Syrup of Roses, with Sena, nine Drams. Let the Patient take an Ounce every half Hour, till he purges briskly.

Take of the best *Syriac* Scammony, thirteen Grains ; Diaphoretic Antimony, a Scruple ; solutive Syrup of Roses, with Sena, six Drams : Let these be mix'd well together, and then add of distill'd Succory-water, half an Ounce. Make a purging Potion.

*Boerhaave*, however, in these Cases, recommends in a particular Manner Tamarinds, and Sena.

3. Besides these, during the whole Course of the Cure, the Patient must be kept strictly to the Use of such Medicines as refrigerate, dilute, attenuate, and excite Urine. For these diminish the Velocity and Motion of the Blood, whereas all stimulating Aromatics increase them, and consequently the Disorder.

Proper Forms for this Purpose are, according to *Boerhaave*, those which follow :

Take of the Leaves of Wood-forrel, three Ounces ; of Mallows, an Handful and an half ; of Oats unhull'd, an Ounce : Boil in a sufficient Quantity of Whey to twelve Ounces ; to which add the Yolks of two Eggs ; Rob of Currans, an Ounce : Of this let the Patient drink frequently.

#### A CLYSTER.

Take of the fresh Leaves of Endive, Succory, Fumitory, Mallows, Marshmallows, each an Handful : Boil these in a sufficient Quantity of Whey for ten Ounces of the strained Liquor. Let this be administer'd twice or three times a Day.

4. Mean time perpetual and strong Revulsions must be made by the Means specify'd above, till the Cure is completed.

5. With respect to Aliment, the Regimen must be extremely thin and antiphlogistic. See *INFLAMMATIO*.

6. All Medicines which stimulate strongly, or excite the Motion of the Blood, or Heat, must be industriously avoided ; as also external Heat ; and the Patient must not be suffer'd to lie in Bed, especially in a reclining or supine Posture, but must be kept erect. Narcotics are in all these Cases esteemed prejudicial.

If an *Apoplexy* from this Cause is already form'd, a Cure is seldom to be expected ; the Remedies, however, above specify'd, are the only probable Means of Relief.

That Species of *Apoplexy* which is caused by Juices extravasated betwixt the Cranium and Dura Mater, or betwixt the Dura and Pia Mater, from a Wound, Contusion, Fracture, or Suppuration, is treated of under the Article *CAPUT*, which see.

That sort of *Apoplexy* which is caused by an Extravasation of Humours in the internal Cavities of the Brain, scarcely admits of any Cure, because it generally proves very soon fatal : But if any Relief can be obtained, it must be, first, from emptying the Vessels by copious Bleeding and Purging, which must be repeated, provided the Symptoms are alleviated by the first ; for by these means Room will be made in the evacuated Veins for the Absorption of the extravasated Humours, which may possibly be impell'd into them by the vital Powers.

Secondly, from correcting at the same time the prevailing Acrimony and Viscidity of the Juices, by Remedies adapted to the particular Kinds of them.

That Species of *Apoplexy* which is caused by an Extravasation of redundant Lymph, more readily admits of a Cure, by brisk Hydragogue Purges, to which must be added Topics which dissipate or draw off a Part of the abounding Lymph, amongst which the principal are large Vesicatories, which must be kept running a considerable time : Besides these, the Regimen must be drying, and Sinapisms, Issues, and Setons, are to be made use of as Occasion requires. In this Species Bleeding is pernicious, and must therefore be omitted.

This Species of *Apoplexy* so frequently occurs, that some Authors have erroneously treated of all *Apoplexies*, as arising from an Extravasation of Lymph.

No Remedies have yet been taken Notice of by Authors, for *Apoplexies* caused by Poisons, or polypous Concretions in the large Vessels.

#### *Apoplecticum Balsamum.* Apoplectic Balsam.

Take the distill'd Oil of Cinnabar, Cloves, Lavender, Lemons, Marjoram, Mint, Rice, Rosemary, Sage, Rhodium, Wormwood, of each twelve Drops ; Amber, six Drops ; Bitumen Judaicum, two Drams ; Oil of Nutmegs by Expression, one Ounce ; Balsam of Peru, a sufficient Quantity to make all together into a smooth Balsam.

This warms and enlivens the Nerves, being either smell'd to, or rubbed upon the Temples, or any other convenient Parts. It does much Good also to paralytic Limbs, by rubbing them well with it. It has been in mighty Esteem and Fashion to wear in little Ivory Boxes and Cane Heads ; but it has in such respects given place to more modish Contrivances. In Distempers of the Head and Nerves, it is likewise directed to be given inwardly from three to six Drops, in a Bole or Electuary. *Quincy's Dispensatory.*

*APOPNIXIS*, ἀπὸ πνιξίς, from ἀποπνίγω, to suffocate. Suffocation, apply'd particularly to Hysterics. These Suffocations were by the Antients thought to proceed from the Uterus.

*APOPSYCHIA*, ἀποψυχία, from ἀπὸ, signifying Privation, and ψυχή, Soul, Life. The greatest Degree of Lipothymy. See *LIPOTHYMYA*. *Castellus*.



**APOPTOSIS**, ἀπόπτωσις. Erotian explains it by τῶν ἐπιδέσμων ἀνεσις, “ the unloosing of a Bandage ; ” in which Sense it is the same as **APOLYSIS**.

**APORIA**, ἀπορία. The same as **ALYSMUS**, which see. Ἀπορὴν νόσημα, in Hippocrates, is a doubtful Disease, or such a one as endangers the Life of the Patient.

**APORRHAIDES**, ἀπορρίδες. Purple Fishes with Prickles. *Castellus*. A sort of Shell-fish.

**APORRHIPSIS**, ἀπορρίψις, from ἀπορρίπτω, to throw away with Precipitation. A precipitate casting away. Ἀπορρίψις ἵπυ ἱματίων, in Hippoc. de rat. Viē. in Morb. acut. is, “ a precipitate Throwing off the Cloaths,” as it is customary for delirious Persons in the Height of a Fever.

**APORRHŒA**, ἀπέρροια, of ἀπορρέω, to flow from. A Defluxion, or Influx ; also a Contagion, Pollution, Effluvium, Morbose Apocrysis. See **APOCRISIS**, **CONTAGIUM**, **EFFLUVIUM**. *Castellus*.

**APORRHŒE**, ἀπορροή, signifies a Defluvium, or Falling off, as ἀπορροή τῶν τριχῶν, is “ a Falling off of the Hair.” See **ALOPECIA**.

**APOS**. A Bird thus distinguish'd :

**APOS**, Offic. Aldrov. Ornith. 2. 698. Bellon. des Oyse, 377. Jonf. de Avib. 84. Gesn. de Avib. 506. *Apos major*, Charlt. Exer. 96. *Hirundo*, *Apus*, Raii Ornith. 214. Ejusd. Synop. A. 72. Mer. Pin. 178. Will. Ornith. 156. **THE BLACK MARTIN, OR SWIFT**.

It lives with us in England during the Summer. See **APODES**.

These, on account of their habitual Exercise and Food, which is of Insects, abound much with volatile Salts, and an exalted Oil. They are said to be good for Epilepsies, for weak Eyes, for nephritic Pains, and for the Colick.

**APOSÆIS**, ἀποσαΐσις, is explain'd in Galen's Exegesis, by ἀποσβεδήσις, that is, extinguished.

**APOSCEMMA**, or **APOSCEPSIS**, ἀπόσκημμα, ἢ ἀπέσκηψις, from ἀποσκήπτω, a Verb, importing, among other Significations, to remove hastily, in order to a new Settlement. A violent Influx and Settlement of Humours translated from one Part to another, Galen, Lib. 2. ad Glauconem. This is sometimes critical, and owing to the Strength of Nature, as the same Author observes, Lib. περὶ τῆς περὶ γινώσκων. He calls also by the Name of ἀποσκήμματα, those excrementitious Parts of the Body, which are deposited in the Alvus, whereby the other Parts are reliev'd from their Load of Humours. Ἀποσκήψεις, in Hippocrates, are the same as ἐποσκήμματα, or the Settlement of Humours, and sometimes the Transmutations or Transitions of Diseases, as Aph. 56. Lib. 6. Ἐστὰς δὲ ἀποκινδυνοὶ αἱ ἀποσκήψεις, “ are in Danger of, or liable to these Transmutations ; ” by which Passage, which otherwise would be obscure, he hints, that Diseases owing to Melancholy are subject to make Transitions into Apoplexies, Convulsions, Madnefs, and Blindnefs. Ἀποσκήψεις, in Hippoc. Lib. 1. de Morb. majore, as quoted by Galen, is explained by him in Exeg. by ἀποσκέσεις, that is, Scarifications.

**APOSCEPARNISMUS**, ἀποσκηπαρισμός, from σκέπαρνω, an Ax, is a kind of Fracture of a Bone, when a Piece of it is cut off, as a Chip from a Block with an Ax. Such a Wound is inflicted by a Side-blow, with a light and sharp Weapon. *Castellus*.

**APOSCHASIS**, **APOSCHASMUS**, ἀπόσχαςις, ἀποσχασμός, from ἀποσχάω, to scarify. Scarification, and a slight superficial Incision in the Skin. Ἀποσχᾶν, and ἀποσχάσαι, in Hippocrates, signify, to pierce, cut, scarify ; and in Lib. 1. ἔ 2. de Morbis, denote Piercing, or Opening, as apply'd to a Vein ; as, Πρώτον μὲν τὰς φλέβας τὰς ἐπὶ τῇ γλῶσῃ ἀποσχᾶν “ First open the Veins under the Tongue.” And, Τῆτι ξυμφέρεϊ τὴν φλέβα ἀποσχάσαι τὴν ἐν τῇ χειρὶ, τὴν σπληνέτιν καλεομένην, ἢ τὴν ἱπατίτιν “ It would be convenient for the Patient to open the Vein in the Hand, call'd the Splenic, or Hepatic Vein.” Ἀποσχάσαι is expounded in Hesy chius by φλεβοτομήν, and in Valerius also by διαχῆσαι, to dissect.

**APOSIGESIS**, ἀποσίγησις, from ἀποσιγᾶω, to be silent. A keeping Silence. Περὶ τὰς ἀποσιγησίας ἐνθυμηματικῶι, in Hippocrates ἄρτι ἐνδεχ. is very differently understood by Interpreters : Some render it, “ sharp and prompt in making pertinent Answers ; ” others, “ grave and sententious in answering.” One understands by the Phrase, “ a Mind obstinately bent upon Silence ; ” another, “ angry and vehement against such as hold their Peace.” *Foefius* takes it in the first Signification, for “ acute and prompt in answering ; ” in which Sense, he says, it will best correspond with the preceding Clause, πρὸς τὰς ἀναστάσεις σιγῆσθαι, which he translates, “ silent (that is, patient and modest) in hearing the Objections of Opponents.”

**APOSITIA**, ἀποσιτία, of σίτῃ, from, and σιτίον, Food. The same as **ANOREXIA**, which see.

**APOSITICA**, ἀποσιτικά, in Hippocrates are expounded in Galen's Exegesis, by ἀποσιτίας καὶ ἀνορεξίας ποιήσιν, “ such Things as cause a Loathing and Aversion to Food.”

**AOSPASMATA**, ἀποσπασματα, of ἀποσπᾶω, to draw off, or separate. A Name by which Galen, Lib. de Conflit. Art. calls those Solutions of Continuity, which are in the organical Parts. In the Beginning of Lib. 4. Meth. Med. he calls the violent Solution of Continuity in the Ligaments ἀποσπασμα, as he does that in the Vessels and Muscles by the Name of ῥήγμα and θλάσμα. In his Comment. 3. in Lib. κατ' ἰνῆρ. he tells us, That Hippocrates calls by the Name of ἀποσπασματα, the rending asunder those Parts which serve to unite and knit together the Bones.

**AOSPHACELISIS**, ἀποσφακέλισις, from σφακέλω, a Mortification, in Hippocrates, is a Sideration or Mortification of the Flesh in Wounds or Fractures, which is caused by too tight a Bandage.

**AOSPHAGE**, ἀποσφαγή, from ἀποσφάττω, to slaughter as a Victim. Butchering, cutting the Throat. Hippoc. ἄρτι δεχ. ἰνῆεα. According to Pollux, σφαγή is the Throat, καὶ τὸ κοῖλον ἔδιδεσθαι αἱ κλειδεῖς, “ and the Cavity between the Clavicles, *Foefius*.

**AOSPHAGMA**, ἀποσφαγμα, is expounded by Galen, τὸ πρυγῶδες παρενθυμα, “ the feculent Straining,” which is also called ὑπόσφαγμα. *Aposphagma* also, according to Pliny and Athenæus, signifies the Blood that flows into the Vessel set under the Throat of a slaughter'd Beast, which was reserv'd for the Preparation of several Sorts of Food.

**AOSPHINXIS**, ἀποσφιγξις, from ἀποσφίγω, of σφίγω, to strain or streighten. A Streightening ; the Word is used by Hippocrates, in several Places, to express the Constriction or Streightening of a Fillet in Bandage.

**AOSPONGISMUS**, ἀποσπογγισμός, is the using of a Sponge, either dry, or dipt in Water, for the deterging of Filth, easing of Pain, taking off Itching, refreshing the Spirits, &c. *Castellus*.

**APOSTAGMA**, **APOSTALAGMA**, ἀπὸσagma, ἀποσάλαγμα, from ἀποσάω, and ἀποσάλλω, to distil. That sweet Liquor which distils from the Grapes before they are trodden ; it is also, on account of its singular Sweetness, called γλεῦκος, and by some *Protoprum*. *Castellus*.

**APOSTASIS**, ἀπόσασις, from ἀφίστημι, to abscede. An Abscess. See **ABSCUSSUS**.

Besides this common Acceptation of the Word, there are other Significations of it to be met with in Hippocrates, whereof two are most remarkable ; one is, ἀπόσασις κατ' ἐκρουν, ἢ κατ' ἐκκρίσιν, “ an Apostasis by Efflux, or Excretion,” when the Distemper leaves the Patient, and passes off by some such Way, as by an Outlet. The second is call'd an ἀπόσασις κατ' ἀπόθεσιν, “ an Apostasis by Settlement,” when the morbid Matter by its own Weight falls upon a Part, and there lodges and settles. Thus, Galen, Com. 8. in Lib. 6. Epid. Πολλὰκις ἀποσάσεις ευεργετοὺς αὐτὸν οὐ ἐπὶ μόνων τῶν καὶ ἀπὸθεσιν, ἀλλὰ καὶ ἐπὶ τῶν ἐπικρίσεως ὀνομάζοντα. “ We often find him applying the Term *Apostasis*, not only to Things deposited in any Part, but to those which are discharged by Excretion.”

Hippocrates also uses ἀπόσασις for the Transition of one Disease into another ; as Lib. 1. Epid. Ἦτοι δ' εἰς οὐκ ὀλίγοισιν ἐξ ἄλλων πυρετῶν καὶ νοσημάτων ἀποσάσεις ἐς τελευταίους ἐγένοντο “ Many of the other Fevers and Distempers underwent an Alteration, and passed into Quartans.” Here Galen on the Place expounds ἀπόσασις by μετασάσεις.

**APOSTAXIS**, ἀπόσασις, of ἀποσάω, from σάω, to distil. A Distillation is generally used by Hippocrates to signify a Distillation of Blood from the Nose ; sometimes it means any Distillation or Defluxion.

**APOSTEMA**, ἀπόστημα, from ἀφίστημι, to abscede. The same as **ABSCUSSUS**, which see.

**APOSTEMATIAI**, ἀποστηματικά, *Arctæus*, Lib. 1. de Caus. ἔ 2. Sig. Chron. Cap. 9. calls those, who, labouring under an inward Abscess, void Pus downward, ἀποστηματικά, as he names those who discharge it by Expectoration, ἐμπνοαί (*Empyri*).

**APOSTERIGMATA**, ἀποστερίγματα, from ἀποστερίζω, to support or prop. It signifies whatever Things are used for a Stay and Support to any weak Part, without Tying or Binding, as Pillows, Bolsters, &c. to the Head, Gal. Com. 3. in κατ' ἰνῆραν. In Hippocrates, Lib. de Flat. ἀποστερίγματα is generally supposed to mean such Diseases as are confirmed and deeply rooted in the Intestines.

**APOSTOLORUM UNGUENTUM**. The Ointment of the Apostles. It is thus prepared :

Take of Turpentine, Resin, Wax, Gum Ammoniacum, each fourteen Drams ; Roots of long Birthwort, Olibanum, Bdellium, each six Drams ; Myrrh, Galbanum, each half a Dram ; Opopanax, three Drams ; Verdigris, two Drams ; Litharge, nine Drams ; Oil, two Pounds ; Vinegar enough to dissolve the Ammoniacum, Opopanax, and Galbanum. Digest the Bdellium, Galbanum, Ammoniacum, and Opopanax, twelve Hours in the Vinegar upon hot Ashes ; then make them boil, and when they



they are thoroughly melted, strain them, and, with a gentle Heat, reduce them to the Consistence of Honey, to which, whilst warm, add the Turpentine. The Licharge being supposed in the mean time to be levigated, grind it in Part of the Oil by a gentle Fire; after which, add the rest of the Oil by Degrees, in which melt the Wax, and the Rosin grossly beaten. Being remov'd from the Fire, mix therewith the Gums before prepared; then the Birthwort and Myrrh; and, lastly, the Frankincense and Verdigris reduc'd to Powder. Stir it continually with the Spatula, till it comes to the Consistence of an Ointment.

It takes its Name from the Number of its Ingredients, which answers to that of the Apostles, being Twelve, except the Oil and Vinegar. It is vulnerary.

APOSTRACOS OSTEON, *σποστράκος ὀστὸν*, from *ὄστρον*, a Shell, in *Hippoc. de Vuln.* is a Bone dry'd to such a Degree as to become a mere Shell.

APOSTROPHE, *σποστροφή*, from *σποστρέω*, to turn away, in *P. Æginet. Lib. 3. Cap. 37.* is a Loathing and Aversion to Food.

APOSYRMA, *ἀπόσυρμα*, from *σπύρω*, to obtrude. The same as ABRASUM, which see.

APOTELLESMA, the Effect or Event of a Disease. *Cælius Aurl. Chron. Lib. 2. Cap. 12.*

APOTHECA, *σποθήκη*, from *σπρίθηναι*, to lay aside, or reposit, formerly signify'd a Wine-cellar, but now a Shop where Medicines are sold; also a Gally-pot. Hence,

APOTHECARIUS, A Preparer of Medicines.

APOTHERAPIA, *ἀποθεραπεία*, from *ἀποθεραπεύω*, to cure, signifies in general a perfect and absolute Cure; for, in this Sense, the Verb *ἀποθεραπεύσαι* seems to be used, *Hippoc. Præcept.* In *Galen* it sometimes signifies the End or last Part of a perfect Exercise, when a Person came to use Friction, Unction, or Bathing, to remove Lassitude; and sometimes it means a particular sort of Exercise, intermix'd with Friction, Remission of Motion, and frequent Intervals of Rest; and that Part of Medicine which teaches these, is called *Apothepentica*, *ἀποθεραπευτική*.

APOTHERMUM, *ἀπόθερμον*, an acrimonious sort of Pickle, such as is made of Mustard, Oil, and Vinegar, or of Vinegar alone, *Gal. de Atten. Diet. Cap. 11.* Some pretend to prove from *Galen, Lib. 1. de Alim. Fac.* that *Apothermum*, *Sapa*, *Siræon*, and *Hesfema*, are synonymous; but their Arguments from the Text are by no means convincing. *Castell.*

APOTHESES, *ἀποθεσις*, from *ἀποτίθεμι*, to reposit, in *Hippocrates*, is the right and orderly repositing and placing of a Limb that is broken and bound up, in the Situation in which it ought to continue; and is the same as THESIS, *θεσις*, and often join'd with *Analepsis*, *ἀνάληψις*, which has the same respect to the Arm, as *ἀπόθεσις* to the Leg. In *Lib. κατ' ἰνδρείων*. *Ἡ ἀνάληψις, ἡ ἀπόθεσις, ἡ ἐπίθεσις, ὡς ἐν τῷ αὐτῷ ἢ διαφυλάττειν* "The Supports, the Posture, and the Bandage, must be kept in the same State."

APOTHLIMMA, *ἀπόθλιμμα*, from *ἀποθλίβω*, to squeeze, or press out, signifies the Dregs, and sometimes the expressed Juice. *Gorræus.*

APOTHRAUSIS, *ἀποθραυσίς*, from *ἀποθραύω*, to break off. The Removal of a Fragment or Splinter of a Bone, that is loosened from the Surface by Exfoliation or otherwise.

APOTOCOS, *ἀποτόκος*, from *ἀποτίκω*, to bring forth Young. Abortive. *Hesychius* expounds *ἀποτόκος* by *ἀποχρηνίσαι γυναιμάτων*, "the tender Buds of Fruits, or Fætus of Animals." *Hippocrates, Lib. de Art.* *ἀποτόκος νοσημάτων χρονίως ποιοῦντα*, "giving Occasion to the Production of chronical Diseases."

APOTOS, *ἀπότος*, from *α Neg.* and *πότος*, Drink. One that never drinks, or desires to drink. *Castellus.*

APOTROPÆOS, *ἀποτροπαῖος*, from *ἀποτρέπω*, to avert. One of the Pagan Deities, who were called *Dii Averruncatores*, *Exjones*; and *ἀλαξιακοί*, that is, Deliverers and Defenders from all evil and hurtful Things.

*Apotropæia*, *ἀποτρόπαια*, were Sacrifices offer'd to these Deities, and sometimes signify'd Amulets against Inchantments, and so were the same as *Periapta*, *περίαπτα*. *Hippoc. Lib. περὶ ἐννοπίων*. *Ἐπὶ ὧ τοῖσιν ἐναντίοις τοῖσιν ἀποτρόπαιοις, καὶ γὰρ, καὶ ἡρώων ἀποτρόπαια γινέσθαι τὰ χαλεπὰ πάντα* "In Times of Adversity supplicate the *Dii Averruncatores*, and *Terra*, (the Earth) and the Heroes, to avert all evil and hurtful Things."

APOTYCHIA, *ἀπότυχία*, of the Privative *ἀπό*, and *τύχη*, Fortune. Misfortune.

APOXE, APOXERA, *ἀπόξη, ἀπόξηρα*, are understood by *Galen, Com. 3. in Lib. Hippocratis κατ' ἰνδρείων*, to signify those Parts of the Body which are acuminated, and grow slender by Degrees towards the Top. Some for *ἀπόξη* read *ἀπόξυ*, and *ἀπόξηρα* for *ἀπόξυρα* and take them to be meant of those Parts, which being dry and wither'd, lessen more and more

towards their Extremity, which by that means is acuminated. *Foesius.*

APOZEMA, *ἀπόζημα*, from *ἀπρῆω*, to boil. A Decoction. See DECOCTUM, where Rules are laid down for the Management of this Form of Medicines.

APOZYMOS, *ἀπόζυμος*, from *ζύμι*, Ferment. Fermented. *Hippoc. in Prorrh. 2.* *Ἀμα ὃ καὶ τὰς γαστέρας ἀποζύμους τε καὶ ῥυπαρὰς ἀποδενύσαι καὶ ψιλιδάδεις* "Besides, it (the Looseness before described) makes the Belly appear as if under a Ferment, dirty and wrinkled."

APPARATUS, *κατασκευή*. An Apparatus. In Surgery, it is a Collection, and regular Disposition, of all the Instruments necessary for the perfect Exercise of the Art, or for any particular Operation. The Word may also be used with respect to other Parts of Medicine, as well diætic as pharmaceutic, which require an Apparatus of the necessary Means and Instruments for attaining their Ends. The Lithotomists have their *Apparatus major* and *minor*. *Castellus, Blancard.*

APPENDICULA VERMIFORMIS. On one Side of the Bottom of the Cæcum lies an Appendix, resembling a small Intestine, nearly of the same Length with the Cæcum, but very slender. It is termed *Appendicula Vermiformis*, from its supposed Resemblance to an Earth-worm. Its common Diameter is not above a Quarter of an Inch. By one Extremity, it opens laterally, and a little obliquely, into the Bottom of the Cæcum, and the other Extremity is closed, being sometimes greater, and sometimes smaller, than the rest of the Appendix.

It has some Contortions like those of a Worm when it is touched, from whence comes the Epithet of *Vermicularis*, or *Vermiformis*; and it may likewise be compared to the Gills or Pendants of a Turkey-cock. Its Structure resembles nearly that of the other Intestines. The internal Coat of this Appendix is folliculous, like that of the Duodenum; and it is likewise Reticular, the Meshes being the glandular Lacunæ, which continually discharge a Fluid into its Cavity.

It has been often disputed, whether this Appendix, or the large Portion which is, as it were, the Head of the Colon, ought to be called the *Cæcum*; but the general Division of the Intestines into great and small leaves no room to doubt of its being only an Appendix in Man, whatever Reason there may be for talking differently with respect to Brutes and Birds. *Winflow's Anatomy.*

The End which is shut, is not tied to the Mesentery, but to the Right Kidney, by means of the Peritonæum. Its Use is yet unknown. Some take it for a second Stomach, others for a Receptacle of the Excrement of the Fœtus, of which it is always full, till after the Birth. Others say, it contains a Ferment, and others, the Flatulosity of the Intestines; and others, that it separates a Liquor by some Glands which are in its Cavity, which Liquor serves to harden the Excrements as they pass thro' the Colon. *Keill's Anatomy.*

APPENDIX, *ἐπιφύσις*, from *ἐπρύω*, to grow to or upon. The same as EPIPHYSIS, which see.

APPENSIO, the Suspension of a broken Limb, principally of the Arm in a Scarf. *Castellus.*

APPETITUS, APPETENTIA, *ὄρεξις, ὄρεξις, ἐπιθυμία*, Appetite. In the most general Sense it means that natural Inclination which is found in all Beings towards particular things; but in the strict and common Acceptation, it signifies a Desire of Aliment, or Meat and Drink. Of this Appetite there are two Kinds, which are *Hunger* and *Thirst*.

APPETITUS CANINUS, *ὄρεξις κυνῶδης*. The same as BULIMIA, which see.

APPLICATIO, *ἐφαρμογή, προσοικέωσις*, from *ἀρμόζω*, to fit, and *προσοικέω*, to accommodate. Application. That Action of the Physician or Surgeon, wherein he administers, or communicates to the Body, internal or external Remedies, as by the Application of a Plaster, Clyster, &c. *Castellus.*

APPLUDA, the Chaff of Millet, Panic, and Sesamum. *Pliny.*

APPOSITIO, the same as ADDITIO, which see.

APPREHENSIO, APPREHENSORIUM, the same as ANTILEPSIS, which see.

APPREHENSIO is sometimes taken also for a CATALEPSIS, or CATOCHÉ, which see.

APPROPRIATIO, that Action of the natural Heat, or vital Flame, by which the Humours and Spirits are so united with the Body, and its solid Parts, as to enable them to perform their proper Functions.

Medicines are said to be *appropriated*, when they are calculated for a particular Part of the Body.

APPROXIMATIO. A Method of Cure by transplanting a Disease into an Animal or Vegetable Subject by way of immediate Contact. *Castellus.*

APRACTA, *ἀπρακία*, from *α Neg.* and *πράω*, to act. Unactive; an Epithet of the Pudenda in a State of Impotence. *Castellus.*

APRONIA. A Name for the *nigra Pitis*, or black Vine, otherwise called by the Name of *Bryony*, *Chironia*, and *Gynæcanthe*.



*necantbe*. The Root thereof, bruised with a fat Fig, takes off Wrinkles, if the Patient, immediately after being anointed, walk a quarter of a Mile. *Pliny, Lib. 23. Cap. 1.* See *BRYNIA*.

**APROXIS**, an Herb so called by *Pythagoras*, whose Root takes Fire at a Distance, like Naphtha. The same Philosopher says, that whatever Diseases happen to the human Body, in the time of the Flowering of the Aproxis, though cured, will be sure to give the Patient a Memorandum at the Return of the Flowering-season. The Case is the same with Wheat, Hemlock, and Violets. *Pliny, Lib. 24. Cap. 17.*

**APSINTHATUM**, ἀψινθάτον, from ἀψίνθιον, Wormwood. A sort of Drink accommodated to the Stomach, of which you have several Forms in *Aetius, Tetrab. 1. Seim. 3. Cap. 69, 70, 71.*

**APSIRRHOON**, ἀψίρρουν, from ἀψ, backwards, and ῥέω, to flow, in *Hippocrates* is expounded by *Galen, eis tou pison reon*, “flowing backwards.”

**APSYCHIA**, ἀψυχία, from α Negative, and ψυχή, Life. The same as *LIPOTHYMA*.

**APTISTOS**, ἀπίστος, from α Negative, and πίσιω, according to *Erotian*, to peel, or take off the outer coarse Rind. *Hippocrates, περι ἀρχαίης πίσιως*, among the Kinds of Bread reckons ἀπίστων πυρῶν, ἢ ἐπισμιμένων, “Bread of Wheat cleansed, or not cleansed from the Bran.”

**APTYSTOS**, ἀπτυστος, from α Negative, and πτύω, to spit. An Epithet of a Pleurisy, or other Distemper, in which nothing is spit out. *Αἱ ξηρεὶ τῶν πλειυρίδων καὶ ἀπτυστοὶ χαλεπώταστοι* “Dry Pleurifies, in which there is no Expectoration by Spitting, are very dangerous.” *Hippocr. Coac.*

**APUA**, a Fish thus distinguished: *Encrasicholus*, *Offic. Aldrov. de Pisc. 214. Charlt. Pisc. 24. Rondel. de Pisc. 1. 211. Jonf. de Pisc. 51. Raii Ichth. 225. Ejusd. Synop. Pisc. 107. Encrasicholus, quos alii Engrantes, alii Lycostomos appellant Rondeletii, Gesn. de Aquat. 68. Halculea, Bellon. de Aquat. 169. THE ANCHOVY.*

They are pickled with Salt, and kept in Barrels, and the whole Fish, as well as the Pickle, are in Use; the Fish pickled is apply'd like Herrings to the Soles of the Feet; and both their Pickles serve for the same Purposes. *Dale.*

You are to chuse those that are tender, fresh, white without, red within, small, plump, firm, and well tasted.

Anchovies are of an opening Nature, fortify the Stomach, and create an Appetite.

When they are used to Excess, they heat much, and make the Humours sharp and pungent.

They contain much Oil, and volatile Salt.

They agree in Winter with old phlegmatic and melancholy People, and with those who have no good Digestion: But young People of a hot and bilious Constitution ought to abstain from them, or use them very moderately.

#### REMARKS.

The Anchovy is a small Sea Fish, that is as long and as thick, very near, as one's Finger; they fish for it in several Parts near *Genoa* and *Provence*. They usually swim in Shoals, and make a close Body together; they will run to the Fire, when they see it, and the same is made use of as a Snare to catch them. But some pretend, that those taken in this manner, are softer than the others; they are pickled after their Heads are cut off, and Guts taken out, which soon corrupt.

This Fish is much used in several Parts of *Europe*; for the Excellency of its Taste, they mix it with Sauces: It helps Digestion, and fortifies the Stomach with its volatile and saline Principles, which cause a gentle and moderate Heat in that Part, and disperse and attenuate the Aliments, that are contained therein. In the mean time, if it be used to Excess, it very much rarefies the Humours by these same Principles, and so produces the ill Effects above-mentioned. *Lemery on Foods.*

**APULOTICUS**, ἀπυλωτικός, the same as *EPULOTICUS*, which see.

**APYETOS**, ἀπύητος, from α Negative, and πύω, Pus. An Epithet for an external Disease, or Tumor which is not suppurable; it is the same as ἀνεκπύητος, in *Hippocrates*, and differs from ἀπυτος, which signifies Want of Pus. *Castellus.*

**APYREXIA**, ἀπυρεξία, from α Negative, and πυρεξία, the same as πυρετός, a Fever. The Absence of a Fever. It signifies that Interval, or Space of Time, which passes between the two Fits of an intermittent Fever; and also the total Cessation and Absence of a continual Fever.

**APYROMELE**, or **APYRENOMELE**, ἀπυρομήλη, ἢ ἀπυρηνομήλη, from α Negative, πυρην, a Nucleus, and μέλη, a Probe. A Probe without a Button, that is, a *Melotris*. *Galen. in Exeges.*

**APYRON**, ἀπυρον, from α Negative, and πῦρ, Fire. What never felt the Fire; in particular it is apply'd by *Dioscorides* to *Sulphur Vivum*, *Lib. 5. Cap. 124.* and also by *Celsus*, *Lib. 5. Cap. 18.* Ἀπυρον is also an Epithet bestowed on a chymical Preparation called *Æthiops*, which is performed by

means of Trituration only, without the Help of Fire. See *ÆTHIOPS*.

**APYROTHIUM**, a Name for *Sulphur Vivum*. *Blanc.*

**APYROTI**. Carbuncles, as *Pliny* says, are so called by some, because though those Precious Stones so much resemble Fire, they yield not the least Sensation of it. *Lib. 37. Cap. 7.*

**AQUA**, Water.

See the Article *ACIDULÆ*, and *THERMÆ*, and *Hippocrates, on Air, Waters, and Situations*, under the Article *AER*. See also *BALNEA*.

It is difficult to form a Judgment of Waters in general, because of the peculiar Nature and Qualities of Places, Air, and many other things; but, for the most part, the best Water is what is pure, sweet, participating of no manner of Quality, and soonest passes off the Hypochondria, creating no Molestation in its Passage, nor breeding Inflammations, and what is least subject to Corruption. *Dioscorides, Lib. 5. Cap. 18.*

#### Of SEA-WATER.

Sea-water is hot and acrimonious, hurts the Stomach, disturbs the Belly, and expels Phlegm. Used warm in a Fomentation, it is both a Drawer and a Diaphoretic, and is therefore proper in Affections of the Nerves, and for Kibes, before they are ulcerated. It is an useful Ingredient in Cataplasms of Barley Meal, and in discutive Plaisters and Malaginata. Administered in a Clyster warm, it evacuates the Belly; and, injected hot the same way, eases the Gripes. It makes a good Fomentation for the Pfora, Itch, Tetters [ἀγχύων], and Scurf [κοιδων], and for Breasts turgid with Milk; it also discusses Lividness from Blows, if the Place affected be fomented with the same hot. An hot Bath of Sea-water is effectual against the Bites of venomous Creatures, which are succeeded by Tremblings and Refrigerations, especially those of the Scorpion, Phalangium, and Asp. The same relieves under an inveterate Cachexy, or Disorder of the Nerves; and the hot Vapour thereof comforts and helps those who labour under a Dropsy, Pain in the Head, and Deafness. Sea-water kept pure, without being mixed with potable Water, loses its rank Smell. Some boil it first, and then set it aside. It is also administered as a Purge, either alone, or with Oxycras, Wine, or Honey, care being taken, after its Working, to give the Patient some Broth made of Chicken or Fish, in order to temper its acrimonious and biting Quality. *Dioscorides, Lib. 5. Cap. 19.*

With respect to Waters, two things come under our present Consideration, which are, that pure simple Element, so well known, and of so universal Use in common Life; and medicinal or medicated Waters, distilled from, or impregnated with, Animal, Vegetable, or Mineral Substances, which are directed to be kept in the Shops.

Many and surprising are the Properties of Water, which have been discovered by Naturalists, to whose Province these properly belong. I shall therefore confine myself to the Properties of Waters, so far as they relate to Medicine. Perhaps it may be of some Use to specify the Salubrity and Insalubrity of those Waters we generally meet with, because as good Waters conduce to Health, those which are bad, are productive of Diseases.

It is a common Observation, familiar in the Kitchen and Laundry, that some Waters are hard, crude, and rough, and others again soft, mild, smooth, or, as it were, milky: The former whereof are properly accounted bad, and the latter good.

#### WATER of dissolved ICE and SNOW.

Among the crude and hard Waters, we reckon that which is obtained by the dissolving of Ice: And of this Water *Hippocrates* says very justly, “That the clear, light and sweet Part in frozen Water, is dissipated and discharged; and only the turbid and ponderous Part left behind: For, if a certain measured Quantity be set to freeze in the open Air, and the Ice be the next Day dissolved in a warm Place, and the Water be now measured again, it will be found to have lost much of its Quantity.” The same Author likewise assigns a very good Reason why Snow-water is rather pernicious than advantageous to Vegetables and Animals; as Water by freezing has its Texture destroyed. For 'tis manifest, that the subtle Principle of the Water is thereby separated from the gross Part, and driven towards the Centre: Whence, in the Middle of all Ice, there appear large Bubbles, proceeding from the subtle elastic Matter being driven inwards; where, by its rarefactive Motion, it increases the Bulk of the Ice, and causes it to possess a greater Space, than when in the Form of Water; and thus occasions the bursting of such Glass or Earthen Vessels as it happens to be contained in. And this shews by what means the fine, fluid elastic Principle is separated, and only the grosser and more ponderous Part left behind: Inasmuch that Water being despoiled and corrupted by this Operation, must needs become unwholesome. But principally the Use of Snow-water is found to produce Swellings in the Glands of the Throat, as frequently happens to those who inhabit the Bottoms of Mountains,



tains, which are all the Year covered with Snow ; but especially in the Women, who have generally large Tumors hanging at their Throat. And this the People who live at the Foot of the *Alps*, *Pyreneans*, &c. to their great Misfortune, experience. Those Waters therefore must be carefully avoided, which, upon a general Thaw, flow down the Sides of the Mountains into the Valleys ; and thus often pollute and corrupt the Springs and Rivers.

#### *The WATERS of MINES.*

In the next place, those Waters are found to be hard, crude, and unwholesome, which are found in metallic Mines, or descend from very high Rocks ; because they lick up in their Passage many rough, earthy, and astringent Particles from the Fossils, Minerals, Chalk-stones, and the harder compacted Bodies they run over ; and thus become impregnated therewith ; whence few can bear to drink them. And their Use, to such as are not accustomed thereto, proves very pernicious. Thus 'tis observed by *Hippocrates*, that those Waters are to be rejected as unwholesome which flow from Rocks ; for this renders them hard ; and those again which run near to hot Springs, Beds of Iron, Stone, Sulphur, Alum, &c. for none but crude, heating, and unwholesome Waters, that pass not well by Urine, but bind up the Belly, are to be found in such Places. And we cannot but commend the Justness of the Observation, with regard to the common Waters found near hot Springs ; for such generally are crude and unwholesome, unfit for brewing, or promoting the Secretions of the Body, but rather obstruct and hinder them ; and the Reason hereof seems principally owing to the chalky, rough, styptic Earth, with which the Soil about these Springs most commonly abounds.

#### CHALKY and STONY WATERS.

Again, those Waters are crude, heavy, and sluggish, which spring up in chalky Ground, as may appear from the Pipes or Canals through which they run ; for they all along deposit an earthy, chalky Matter, that lines the Insides of these Conduits ; and, when boil'd over the Fire, deposit a stony Crust on the Sides of the Vessel. In short, the stony Waters of all Kinds, running upon chalky Beds, are unwholesome, crude, and hard ; as the Matter of these Beds is easily imbibed by the Waters, which renders them gross and heavy ; so that when drank, they pass with Difficulty through the fine Canals of the Body ; nor readily reach the Extremities of the Veins, without causing Obstructions.

#### STAGNANT WATERS.

Lastly, those Waters are unwholesome which collect themselves in stagnant Ponds, marshy Grounds, or are received into Reservoirs, formed on Purpose to preserve the Rain, that runs from the Tops of Houses ; as also those of Springs arising in an open Champain Country, and having a muddy, unctuous, earthy, or bituminous Bottom ; for all these are gross, turbid, and somewhat fetid ; and, though frequently refreshed by new Rain, lose their fine, thin, and most useful Principle, by the Sun's striking continually upon them ; whence they become subject to cause Obstructions in the finer Vessels, and are productive of chronical Distempers.

#### RAIN-WATER.

On the other hand, those Waters must be allowed good and wholesome, which are light, sweet, soft, thin, and readily pass through all the excretory Vessels of the Body. And of this Kind, in the first place, are certainly those raised by the Sun into the Atmosphere. The Cause of this is, with more Chymical Knowledge than one could expect, delivered by *Hippocrates*, in these Words : " Because the Sun raises that Part " which is thinnest and lightest, leaving behind what is saline, " gross and heavy, in the Sea. " For, in Reality, Rain-water is Water distilled by the Sun, which not only raises from the Ocean, but likewise from all Springs and Rivers, the lightest and thinnest Parts of the Waters, makes them mount into the Atmosphere, attenuates, perfects and digests them with its Rays ; and indeed enriches them with the universal, æthereal, and sulphureous Salt, or rarefied and exalted Nitre, as appears from Experiment and Observation : So that by this means, the Chymic Sun seems to prepare a most perfectly pure and wholesome Water, which will readily pass through all the finest Vessels of the Body, wash the capillary Meanders thereof, and promote its own Discharge by the Law of Circulation. Whence this naturally distilled Water is better fitted than any other for the Nutrition of Vegetables, the brewing of Drinks, the infusing of Herbs, all Family Uses, and is of itself, without farther Preparation, one of the noblest, and, when properly used, perhaps the most universal Remedy in all Nature, as we propose more fully to shew hereafter.

We are sensible of the Objections against this general Position, as to the Purity and Perfection of Rain-water. " 'Tis " said, that this Water soon putrefies, corrupts, and stinks, and " thence must necessarily become unwholesome. " But, to con-

sider the Matter chymically and closely, though the Fact here alledged were certain, yet it only demonstrates, that this Water abounds with sulphureous Particles, which is also confirmed by numerous Chymical and Philosophical Experiments.

But this Inconvenience attending Rain-water may, in great measure, be prevented, by catching it, not after it has washed the Tops of Houses, and run through foul Pipes and Conduits, but as it falls immediately from the Air, in an open Place where no Houses stand. For this, when it has stood a while to settle, cleanse and purge itself, as it will in a very few Days, may be drawn fine from its Bottom, and long preserved perfect, in pure Vessels of Earth or Glass : But if put into Vessels of Wood, especially such as are new, it thence extracts numerous, fermentable, sulphureous Parts ; and accordingly runs into what is commonly called Corruption. And the Reason of this Difference is plain from Chymical Experiments ; for as, by standing, the gross Sediment falls to the Bottom, that, like the Lees of Wine or Beer, contains the subtle, fermentable, sulphureous Particles, which have the Power to begin or renew an Intestine, fermentative, or corruptive Motion : When these busy Particles are once separated, whether by Standing, Filtration, or Distillation, the pure remaining Fluid must necessarily continue unaltered in its natural Texture and Constitution.

'Tis also worth observing, that the Rains which fall about the Vernal Equinox, and in the Month of *May*, when the East and South Winds blow, are of a much more subtle and spirituous Nature, and refresh and nourish all the Vegetable Kingdom, better and quicker than those which fall in other Months, when the Winds stand to different Points of the Compass : The Reason whereof seems owing to this, that in the coldest Countries, or such as are filled with dense Vapours, the Exhalations of the Earth and Waters cannot be so much ripened and refined, as in Countries where a warmer Sun raises them up, concocts, and brings them to Maturity.

#### SPRING-WATERS.

The next Degree of Perfection we assign to those Waters, where the Springs lie high, rise on clean earthy Hills, and run upon a gravelly Bottom, or pure hard Clay ; provided they be sweet, that is, perfectly tasteless, limpid, transparent, cold in the Summer, warm in the Winter, and receive the rising Sun. For when Waters pass through such a kind of porous, spongy Earth, which is not dissolved thereby, they are thus percolated, filtered, and purified, after the manner of that common Practice in *Italy*, *Sicily*, *Holland*, and other Countries, where they pass their thick and muddy Waters through a certain spongy Stone, cut and chizzed into a kind of Mortar, so as to become a large and proper Filtre for thoroughly purifying the Water, which it transmits perfectly bright, clear, and grateful, retaining the Filth and Slime behind.

#### *To try the Goodness of WATERS.*

There are certain æconomical Observations, and Ways of proving the Goodness, Excellence, Thinness, and Virtues of Waters. It is a thing known to every one, that those Waters are soft and light, which readily take Soap, easily wash Linen, and quickly boil Peas, Pulse, &c. soft and tender ; and the Waters which will not do this, are properly accounted rough, harsh, and hard. But for these Purposes, there is nothing comparable to Rain-water, which is admirably fitted for the washing of Linen, and boiling of Pulse and Herbs to the greatest Perfection. So likewise these Waters are to be esteemed good and excellent, which best serve the Purposes of Brewing, or the making of Malt Drinks ; for, 'tis certain, that the Wholesomeness of Malt Liquors has a great Dependence upon the Goodness of the Waters ; whence such Countries always brew the best, wholesomest, and soundest Drinks, as are supplied with the best and purest Waters. In general, hard Waters make the best Beer for keeping, and soft Water the best for Flavour ; but they are subject to turn sour. And a Proof of Excellence in this Case is, when the Drink neither oppresses the Stomach, nor binds up the Belly, but passes readily by Urine. On the other hand, in those Countries where the Waters are thick, gross, and slimy, the Drinks are unwholesome, generate Wind in the Stomach and Bowels, pass sluggishly through the Canals of the Body, breed Stones, and stony Concretions, in the Viscera, rot the Teeth, relax the Gums, &c. of all which there are but too many Instances in particular Countries. Another Sign of Goodness in Waters may be taken from their feeding and producing fine wholesome Fish ; and their Indisposition to freeze. For these Particulars prove a Fineness of Parts, and a temperate and wholesome Nature, in such Waters.

#### RIVER-WATER.

Those Waters likewise, that remain long sound and uncorrupted, may be esteemed good ; as this affords some Token of their being free from Impurities, and Parts which do not properly belong to them, and of their being rather simple, pure, and full of the spirituous Principle, which preserves them from Corruption. And hence 'tis found, that if River-water, as well



well as Rain-water, be first freed from its Filth by standing, drawing off from its Bottom, or filtering through a porous Stone, and then put into proper large earthen Vessels, and preserved in a cool Vault, or Cellar, it keeps much better and longer than when committed to little Vessels, and set in a warm Place. And thus the Water of the River *Tiber*, which the common People drink thick and muddy as it runs, is clarified and preserved by the Nobility of *Rome*, in large Earthen Vases, which stand in their Wine-cellars. Whence it remains perfect and uncorrupted for many Months, or even for Years.

Besides the several Signs of the Excellence of Waters, above delivered, there are abundance more, derivable from the Art of Chymistry; though these being not so well suited for general Use, we shall not enter into a Detail of them, but finish this Account with observing, that soft, subtile Waters, and particularly those of Rain, are constantly found the fittest for washing what we call the Calxes of Metals, from their Salts; whilst hard Water is very unfuitable for this Purpose.

*Hoffman*, in the following Dissertation, has farther explained the Natures of different Waters.

#### WATER considered as a MEDICINE.

How earnestly, and how universally, a Medicine capable of subduing all Disorders, of whatever Nature, has been desir'd, is, I presume, sufficiently known to such as have any tolerable Acquaintance with physical Subjects; and indeed, immortal Honours ought to crown the Man who should be so lucky as to discover a Medicine of this Kind, since the Recovery of the Sick, and the Safety of Mankind in general, are so nearly connected with a Discovery of this Nature. But since we have not hitherto found a Medicine capable of certainly subduing any one Species of Disorder, so we have the greater Reason to despair of finding one capable of eradicating and baffling the whole Train of Diseases to which Mankind are subject; for if we reflect, with Attention, on the Difference of Constitutions, on the numerous and often contrary Causes of Diseases, and on the Virtues of Medicines varying according to the various Constitutions of the Patients to whom they are exhibited, we shall easily see, that 'tis in vain to rack our Brains, and spend our Time, in the Pursuit of an universal Medicine.

But if there is, in Nature, a Medicine which deserves the Name of *Universal*, 'tis, in my Opinion, *common Water*: The Use of this is so common, and so necessary to us all, that without it we can neither live, nor preserve our Bodies sound and healthy; for it guards against Diseases of every Kind, protects, and defends the Body from all kind of Corruption, that may prove fatal to Life. Besides, *Water* answers all possible Intentions of Cure; so that, without it, no Disorder, whether chronic or acute, can be happily and successfully removed. For Confirmation of this Opinion, I shall not insist on the Medicinal Springs, whether hot or cold; nor attempt to prove their salutary Virtues in subduing various Disorders; but shall confine myself entirely to common Water, tho' of the best and purest Kind, the universal Use of which I at present design to recommend.

Since, then, I am to consider *Water* as an universal Medicine in preventing and curing Diseases, and since I intend to prove, that it is so, by the strongest and best chosen Topics I possibly can, I think it will not be improper to premise a few Things concerning the natural Necessity our Bodies lie under of being ruin'd or destroy'd one time or other; that, these things being known, we may be able, with the greater Accuracy, to discern what Diseases are curable, and what not. As to the natural Necessity of dying, 'tis sufficiently known, that the Duration of our Bodies, and a Prevention of that Putrefaction to which they are naturally very much dispos'd, depend entirely upon the perpetual and uninterrupted Circulation of the Blood and Humours; for so long as this Circulation is entire and unobstructed, so long we are said to be alive; but in proportion as it decreases, or is impair'd, we make gradual Advances towards *Death*. 'Tis, therefore, this Motion alone which guards the Body against Corruption, because it hinders that State of Rest, which is the Cause and Foundation of all Putrefaction, from taking place in that heterogeneous Fluid with which the Parts of all Animals in general abound.

Our Bodies would, without Doubt, enjoy an eternal Duration, if we could for ever preserve and maintain the Circulation of the Blood; but since human Weakness, and the wretched Condition of our mortal Nature, render this impossible, it is at least worth while to inquire into the Cause which may produce a Deficiency or Decrease of this Circulation, which, in my Opinion, is as follows: This vital Circulation of Humours is carried on by Organs and Ducts; the elastic Fibres of the Muscles, which are furnish'd with a successive and reciprocal Dilatation and Contraction, constitute the Organs. These Organs are Vessels, some of larger and others of lesser Diameters. When, then, at any time the Elasticity and Impulse of the Fibres are so diminish'd as not to bear a due Proportion to the Quantity of Humours to be moved, and when these Humours are not quickly and expeditiously carried thro' the small-

est Tubuli, Stagnations of the Humours must unavoidably happen in the Capillary Vessels; and hence arise Putrefactions, those fruitful Sources of Disorders and Death.

For as, in all Machines, the Elasticity and moving Forces of the component Parts are weaken'd and impair'd, by reason of the Change undergone by the Matter of which the said Machines are made, so it happens in our Bodies, that the Fibres, which alone are the Instruments of Motion, in Process of Time become thick, hard, solid, and dry: For this Reason they not only move with Difficulty, but the Pores, and minute Passages, being by that means render'd narrower, hinder the Fluids from being carried thro' their Channels in an equal and uniform Course. 'Tis sufficiently proved by the Fleshes of old Animals, which, by reason of their Hardness and Solidity, require a stronger Heat, and longer Time, to render them soft and tender, than the Fleshes of young Animals do: Hence we may conclude, that there is not the least Doubt to be made but if the same State, the same Mobility of the Fibres and Vessels, and the same Degree of Aperture in the Pores and minute Passages, could always be maintain'd and preserv'd, Life might of course be protracted for ever, if external Causes, and foreign Degrees of Violence, did not interfere to put an End to it. That this surprising Effect may possibly be produced, either by Medicines, or a proper Regimen, is a Fact which can by no means gain the Assent of those who are ignorant of the Virtues and Qualities of natural Bodies: But 'tis not only probable, but strictly true, that many have fallen short of that Period of Life and Duration, which the natural Temperament and Constitution of their Bodies seem'd to promise, whilst they were either ignorant of, or despised those Rules, the Observation of which would, in the very Nature of the Thing, have procur'd them that Blessing; so that the greater Part of the human Species, either by exorbitant Passions, Intemperance with regard to the Non-naturals, or a criminal Neglect to distinguish between things of a salutary and a noxious Nature, unavoidably shorten their Days, and render their very Existence a Foundation for Distress, Calamity, and Misery.

Having thus explain'd the natural and internal Cause and Origin of Death, it will not be improper to assign a few Reasons why some Diseases are incurable, and of so stubborn and unrelenting a Nature, that they will not yield to the highest Skill, or the best chosen Remedies. Now that there is a certain Analogy and Proportion betwixt the Agent and the Patient, and that Effects can only be produced by their proper and adequate Causes, are Truths sufficiently evinced and explain'd, both by Reason, and the Laws of Motion: When, therefore, obstinate Obstructions of the Vessels, Indurations of the Viscera, large Effusions of Humours into the Cavities of the Duets, and consequent Putrefactions, happen, what Physician is able to discover Medicines of such a powerful and efficacious Quality as to subdue and remove these Disorders? Who can put a seasonable Stop to the remote and internal Inflammations of the more noble Parts, and the Mortifications consequent upon them? Or, what Man is there found among all the venerable Sons of the *Healing Art*, who can, with Certainty, quell and calm the violent and preternatural Commotions of the nervous System? If I could once find the happy Man, who, by any sort of Medicines, could perform such miraculous Cures, I would not only pronounce him a second *Aesculapius*, but loudly proclaim, that he was sent from *Heaven* as a common Blessing to the *Earth*; since I am firmly persuaded, that no acute Distemper could possibly prove fatal to the Patient, who should have the good Luck to be under his Care.

We must also, on this Occasion, inquire whether there are, in Nature, Medicines peculiarly adapted and calculated for removing particular Disorders. 'Tis universally known, that some Medicines are, even in our own Days, wonderfully extoll'd as *Specifics* against certain Diseases. Thus the *Peruvian Bark* is esteem'd a Medicine of divine and irresistible Efficacy against Fevers. *Quicksilver* is wonderfully extoll'd against a virulent *Lues Venerea*. *Opium* is said to be the surest and most efficacious Aswager of all Kinds of Pain. *Steel* is call'd the sovereign Reliever of the Hypochondriac. *Sulphur* is accounted the most valuable Pectoral. *Caster* is judged to have the most happy Influence on the Nerves. Bitters are applauded as the most suitable Remedies in dropical and cachectic Cases. Nitre is given out to be of uncommon Efficacy in allaying feverish Heats. But tho' these Medicines are justly distinguish'd on account of their Virtues, and their Praises deservedly celebrated, yet any Person, who has been for a considerable time employ'd in the Practice of Physic, cannot fail to observe, that they are by no means sufficient to remove the respective Disorders to which they are appropriated: For who does not know, that almost all Distempers are nourish'd and fomented by different, and often by contrary Causes? Who is ignorant, that the same Diseases, in different Stages, appear with different Series of Symptoms; and that, according to these, there is more or less Danger in the Case? Who is not apprish'd, that there are different Constitutions; and that on these the Actions of Medicines vary very remarkably? Hence it must necessarily follow, that one and the



the same Medicine must produce different, and even contrary Effects, according to the different Constitutions of the Patients to whom it is exhibited; for 'tis carefully to be adverted to, that Medicines act not only *secundum Aëritatem suam*, or according to their own inherent Qualities, but also *secundum Receptivitatem*, or according to the Constitution of the Patient to whom they are exhibited; or, in other Words, the Force of Remedies is the Result of a mechanical, mutual, and reciprocal Action and Reaction of Medicines and Constitutions; so that if a Medicine acts upon the Body, the Body returns the Favour, and acts in like manner upon it. Hence we may judge, how daring and impious the Practice of those is, who, not regarding the Diversity of Constitutions, morbid Causes, and other Circumstances, in the same Disorder invariably prescribe the same Remedy exhibited in the same Form, as blundering and unskilful Physicians do, to the great Reproach of Physic, and the unspeakable Emolument of Funeral-undertakers, Grave-diggers, and all that Class of Men who *live* by burying the *Dead*: For the Physician who duly adverts to the above-mention'd Considerations, will not readily adhere to one and the same Remedy in one and the same Disorder, unless all Cases were directly parallel.

It now remains, that I fix and ascertain the precise and determinate Sense, in which *Water* may be said to be an *universal Medicine*. Now I affirm, that Water is excellently suited and adapted to all Constitutions, and that at all Times and Seasons whatever; that there is not, in Nature, a more noble or efficacious Preservative against Diseases; that in acute as well as in chronic Disorders, it affords a most certain Relief; and lastly, that its Use answers all possible Intentions, as well *preservative* as *curative*: But since there is a great Difference between different Waters, we are carefully to inquire which are best calculated for answering this Medicinal Intention; for 'tis not to be deny'd, that the Nature and Properties of particular Waters differ so far as to be easily distinguish'd, even by the Taste of such as accustom themselves to drink Water. But the best Way of distinguishing them is by Chymical Trials, their Weight, and mixing them with different Substances. It must not be imagined, that Water is an homogeneous Fluid; there are numerous Experiments that manifest it to be a Mixture of different Parts. Thus all Waters contain an aerial or æthereal Principle, whereon their elastic Property seems entirely to depend; for all Waters are more or less expansive and contractive, as they contain more or less Air or Æther. This evidently appears in the Water-thermometer, where the included Liquor possesses a greater or less Space, according to the greater or less Degree of Heat it sustains: For 'tis the Nature of all Liquors to admit a great Quantity of æthereal Fluid when they are heated, and again reject it when they are cool'd; as we know by particular Experiments, made in a very severe Winter. The Quantity of Air or Æther residing in Water cannot perhaps be better determin'd than by means of the Air-pump; for the more subtle Waters, included in an exhausted Receiver, throw up numerous Bubbles, and, if somewhat heated, flow over the containing Glass; as, on the contrary, those which are grosser, and more ponderous, afford fewer Bubbles *in Vacuo*.

Waters also appear to consist of a lighter and a heavier Part; and the former, as being more moveable, easily rises first in Distillation; whilst the heavier and grosser Particles require a greater Degree of Heat to bring them over: Whence 'tis observable, that Waters lose their more subtle Parts in boiling, and leave the cruder and less useful ones behind, as is known to all those who are curious in the making of Coffee; for if the ground Berries are put into Water, that has long been boiled, the Liquor, so made, becomes less quick and pleasant to the Taste. It has also been observed, that some Waters rise much faster than others in Distillation. Waters also differ extremely in their Gravity, as appears by the Water-poise, those which abound with Earth and Salts causing the Instrument to rise higher than such as are pure: But Distillation is one of the best Ways of discovering the Purity of Waters; as not only rendering the Quantity, but also the Quality, of the Contents evident to the Senses. 'Tis surprising to see what a large Mass of earthy or stony Matter remains, upon the Distillation of some Waters. I once distill'd two Quarts of Spring-water, in a Glass Body, to Dryness, repeating the Operation ten times in the same Vessel; and by this means obtain'd a hard stony Crust at the Bottom, as thick as the Back of a Knife. Most Waters contain a chalky Earth, some an Oker, others a stony Matter, and others again a Proportion of common Salt. But the true Way of examining whether Waters are impure, or contain any foreign Matters, is by the Means of Chymical Experiments; two whereof I have singled out for my own Use, and recommend, as exactly discovering the Purity or Impurity of Waters. The first is, by dropping Oil of Tartar into them; and the second, a Solution of Silver in *Aqua-fortis*. If the Waters are pure, such as Rain-water, Water distill'd, and some Sorts of Spring-water, they manifest no Alteration upon mixing with these Liquors; but if impure and gross, they turn milky with Oil of Tartar, especially if they abound with a chalky Earth; and the Solution of

Silver turns impure Waters thick, grey-colour'd, and, if they participate of Iron, almost red.

The Effects of Waters also manifest their Nature, Subtlety, and Purity: Thus, those that are light and soft serve best for mollifying the Bones of Animals, and the Boiling of Sea-fish. The Whitsters and Bleachers find a remarkable Difference in Waters; the softer and fatter Sorts thereof serving better to wash and blanch, than such as are ponderous, hard, and take Soap with Difficulty. The Bakers find, that the more soft and subtle Waters make their Bread rise well. The Gardeners observe, that such Waters as are light, subtle, and spirituous, are much better to water their Beds with, than such as are hard. The Masons, Makers of Terrace and Figures in Plaster of *Paris*, find hard Water the best for their Purpose; and can scarce work with such as is soft, so as to give their Matter its due Strength and Firmness. The Chymists find a great Difference in Waters; those of Rain being best suited to wash and edulcorate their Magisteries and Metalline Powders, *viz.* the Calx of Gold, Silver, the Caput Mortuum of Vitriol, &c. as readily drinking in the Salts that hard Spring-waters will scarcely touch. We daily observe, in the domestic Operations of Brewing, Washing, the making of Tea, &c. that the more subtle and soft River-waters are better for these Purposes than Spring-water.

But for Medicinal Purposes we prefer Rain-water, as what is naturally distill'd by the Sun, and thus render'd subtle, and fitter for Solutions, Infusions, Extractions, and all internal Uses. Only this Water, being mix'd with various mineral, vegetable, and animal Exhalations, is thence render'd easily corruptible, if exposed to the free Air, or suffer'd to stand long in Vessels of Wood. The Rain that falls in the Month of *March* is more durable, as not then receiving so many Effluvia. The better to fit this Water for Medicinal Use, 'tis proper to keep it in earthen Vessels, close stopp'd down: And thus if it be collected, not in Cities and Towns as it runs from the Spouts of Houses, but in the open Fields, it may be kept sound and serviceable for several Years.

Next to Rain-water, in point of Goodness, comes that of Rivers: But as Rivers proceed from the Springs situated in high and mountainous Places, and as Rains increase these Springs, which, running over vast Tracts of Land, drink up many different Matters from the Earth; hence Rivers become more turbid and impure, the larger Tracts of Land they wash in their Course. Add to this, that they take up numerous heterogeneous Parts from the Bottom they run upon, whence there often arises a considerable Difference betwixt Rain and River-water. Lastly, Rivers, being perpetually exposed to the free Air, and the Action of the Sun, have their more subtle Parts exhaled and raised into the Atmosphere, so as to supply the Matter of Clouds and Rain.

There is likewise a great Difference between the Waters of Rivers; for those that have a swift Course, or run violently down from the Mountains, where they rise, into the lower Plains, are very different from those where the Course is slack and gentle, and which rise in lower Places. Thus the rapid Rivers usually afford a light and subtle Water, not greatly subject to Corruption; tho' somewhat improper for the feeding and nourishing of Fish, because the Rapidity of their Motion prevents the Spawn of the Fish from clinging to their Banks, so as to be there animated by the Heat of the Sun. But tho' these Rivers of swift Course do not greatly abound with Fish, yet those they produce are well-tasted and excellent: Thus the *Rhine* and the *Rhone*, which rise from the highest Mountains of the *Grisons* Country, are found to be much lighter than the Waters of other Rivers. And 'tis remarkable, that the Ships coming out of the River *Moyne* into the *Rhine*, draw much more Water in the latter: And hence the Waters of the *Rhine* and the *Rhone* appear, upon Hydrostatical Examination, nearly to approach the Lightness of Rain-water. And as both these Rivers are very rapid, their Waters are hence render'd less corruptible, and therefore allow'd, for internal Medicinal Use, to excel the Waters of all other Rivers. Thus we are assured, from a good Writer upon the Water of the *Rhone*, that "if it be kept in Wine-cellars, put up into large earthen Jars, so as there to deposit its Sediment, for some Weeks or Months before 'tis drank, it thus becomes pure and excellent; and will afterwards keep many Years, or even an Age, without spoiling or corrupting." *Jacob. Spon. in Observation. circa Aquam Rhodan. in Act. Erudit. Ann. 1683. p. 519.*

The Rivers that flow gently, differ from the former, not only on account of the immense Quantities of Fish they breed, but also because they generally run on fat and clayish bottoms, or such as afford proper Bedding and Nutriment to Fish; whence such Rivers are not so clear and crystalline as those of a rapid Course: But then such Waters are of a softer Nature, and serve for the Purposes of Washing, Fulling, Scouring, &c. without any considerable Addition of Soap. From hence it may easily appear, that Rivers are not at all alike, or equally fit for Medicinal Use: Those to be chosen for this Purpose are clear,



clear, light, do not easily corrupt; and receive no Alteration upon the Addition of Oil of Tartar, or any metalline Solution. It must be constantly observed, that Rivers of a rapid Course are universally more wholesome than those which flow slow and gentle.

Spring-waters are also sometimes observed to differ in their Virtues; for according to the different Nature of the Soil and earthy Matters they meet with or imbibe, they receive a different Nature and Disposition; whence we seldom find Springs of a perfectly pure and light Water. The greatest Part of them leave a copious earthy Substance upon Distillation. There are but few that do not turn thick with metalline Solutions, or alkaline Salts: Some of them contain common Salt; and others a subtle, volatile Vitriol. If they hold common Salt, Oil of Tartar will discover it, by turning milky therewith: If they contain a vitriolic Principle, the Infusion of Galls, or Balaustines, will manifest it by turning black. There are others again, that contain somewhat of Iron, and thence have a styptic Taste, and let fall an Oker upon standing. 'Tis therefore the Business of Art and Industry, out of so large a Number of Springs wherewith Nature supplies us, to discover the wholesomest, which are known by their Lightness, Transparency, Purity, Durability, and the Trials above-mention'd. This Difference in Spring-waters must also be observed, that some are soft, and others hard, the latter whereof are the most durable, and indisposed to freeze; whereas the former more easily turn to Ice. They are both of them wholesome and medicinal, if properly suited to the Disease and Constitution of the Drinker or Patient.

Having thus shewn which Waters are best fitted for Medicinal Use, and how they are to be distinguish'd and examin'd, we now come directly to prove the Excellence and universal Virtue of pure Water: Our first Position is, That pure and light Waters are agreeable to the different Natures and Constitutions of all Men; for since the Circulation of the Fluids thro' the Canals, and finest Vessels, is what preserves and secures the Body from Corruption, and keeps the Blood and Juices in a thin, moveable State, Water must necessarily be appropriated to the Continuance of Life. The Fluids of the Body, serving to Nutrition and the vital Offices, and whereof the Solids also are composed, actually consist both of Solids and Liquids: That there are solid Parts contain'd in the Blood, is evident upon drying it; and that these Parts are of different Natures, some saline, others unctuous, some mucilaginous, and others earthy, appears to the Senses, by the inflammable Property they have upon Evaporation, and other Chymical Experiments. In short, they are a Number of heterogeneous Parts united into one Whole, which is very corruptible, when put into a State that fits it for Corruption; that is, a State of Warmth, Rest, and Moisture. To prevent the Fluids from thus corrupting, and consequently infecting and changing all the other Parts of the Body, it is necessary they should never stagnate or collect together, otherwise Corruption would immediately ensue: Whence these subtle, solid Particles, both unctuous and earthy, should not only be kept in perpetual Motion among themselves, but also circulate in a progressive Motion through the finest Tubes of the Body, that the solid Parts of the Blood may be divided into extremely fine Globules, by the Motion of Attrition, or Action and Reaction between the Juices and the fibrous Parts. Whence appears the Necessity of an aerial, æthereal Fluid, and elastic Principle, along with a large Quantity of an aqueous Fluid; that is, the Necessity of pure Water, to secure this indispensable Effect. And hence it is, that, upon examining the Blood taken from a Man in Health, we find, at least, two Parts of a Fluid, for one of a dry and solid Matter; for I have frequently observed twelve Ounces of Blood to contain eight Ounces of a liquid, and four of a solid Substance. Again, that the Blood contains a large Quantity of a subtle, aerial, and æthereal Principle, manifestly appears from its Bubbling in *Vacuo*, so as to run over the Edges of a cylindrical Glass, whereof it at first possessed only one half. From the Whole we infer, that nothing is more wholesome, nothing better fitted, or more necessary to preserve Life, than Water; which is so agreeable to the Nature of the human Body, and without which it can neither subsist, nor Life be long preserved.

Our next Position is, that no Remedy can more effectually secure Health, and prevent Diseases, than pure Water. If we strictly inquire into the Cause of Health, we shall find it to be an equable and free Circulation of the Juices through all the Canals of the Body, even the finest, that lead to the Excretory Ducts. For by this means it is, that what proves serviceable and fit for Nutrition, remains within, separated for Use by the proper Strainers; and what would either prove useless, corruptible, and inconvenient to the Body, is discharged. And here it deserves the utmost Attention, that the Excretions of the Body do not so directly, simply, and absolutely regard Life, as they indirectly regard Health, and the Exercise of all the Functions and Offices, inasmuch that Health, and even Life itself, may be endangered, without any Fault in the Excretions. Thus 'tis

obvious, that from violent Passions of the Mind, extreme Pain, Inflammation of the Stomach, and the swallowing of Poisons, the natural Functions of the Body are strongly disordered. Neither in the most obstinate Chronical Diseases are the Excretions so much to be regarded, as the Obstructions of the glandular Parts, the Indurations, Corruptions and Sphaculations of the Viscera, and Extravasations of the Humours: So likewise in Acute Distempers, the inflammatory Disposition of the Blood is principally to be regarded. 'Tis therefore an equable Motion of the Blood and Juices that maintains Health, promotes the Excretion of unnecessary Substances, affords a convenient Nutriment to the solid Parts, and procures to the Nerves and Fibres that most subtle Fluid, by means whereof they feel and move. But whenever this free and equable Motion is obstructed, whether by an Over-charge of Humours, their Viscosity, or by Weakness in the Spring or Tension of the moving Fibres, it becomes an immediate Occasion to Diseases, especially those we term Chronical; for from these Causes proceed Stagnations of the Juices in the larger and smaller Vessels, Obstructions in the Excretory Ducts, and Indurations in the Glandular Parts; these are soon followed by great Impurities of the Juices, causing Pains and spasmodic Disorders; and not long after, by Putrefactions, which are the Bane of Health, and the direct Opposite to Life. And thus are the true Causes of Diseases formed in the Body.

Every one who perceives the Justness of this Description, will readily grant, that a proper Fluidity of the Blood is highly necessary, to procure a free and equable Circulation; by means whereof the Vessels are kept always open, Obstructions prevented, Excretions secured, Stagnations and Impurities of the Juices hindered, and the Causes of Diseases cut off. And whether there be in Nature a better disposed Remedy for procuring this necessary Fluidity to the Blood, we leave to the Judgment of sober and experienced Physicians. To us it appears, that a pure and subtle Water exquisitely divides the solid and viscid Parts of the Blood and Juices, so as to prevent their coagulating, or coming together; at the same time that it drinks up the useless and recrementitious Matters of various Kinds, whether earthy, saline, or unctuous, and discharges them by the proper Outlets.

And hence, we conceive, proceeds the Reason why Drinkers of Water, provided it be pure and excellent, are more healthy, and longer lived, than such as drink Wine, or Malt Liquors; and why it generally gives them a better Appetite, and renders them plump and fleshy. For certainly Water is a most appropriated Menstruum to dissolve the Aliment, extract its Chyle, or nutritive Part, and carry it through all the innermost and finest Canals of the Body. Besides this, it readily washes off and dissolves that tough viscid Slime, which lines the glandular Coats of the Stomach, and Duodenum, whereby the dissolving Juices of the Intestines, which are the immediate Instruments of Digestion, may more plentifully mix with the Food, and perform their Office. There goes a common Opinion, that the drinking of Water is pernicious to those who eat Fruit: But this is a great Mistake; for in *Spain*, *Portugal*, and *France*, Water is the common Liquor; and yet those Nations freely eat Fruit all the Summer, without any Inconvenience. Again, those who drink Water, are observed to have much sounder and whiter Teeth, than others; for Putrefaction and Corruption of the Teeth is caused by the Scurvy, a Disease prevented by the drinking of pure Water, which actually cleanses and washes the Blood, and discharges the Foulness thereof. Add to this, that the Drinkers of Water are much brisker and more alert to all the Actions both of Mind and Body, than such as use Malt Liquors, the greatest Parts whereof produce clammy, viscid, and sluggish Juices, hardly capable of passing through the exquisitely fine Vessels of the Brain and Nerves; whence ensue Indolence, and Weakness of the Body, and an Indisposition and Dulness of the Limbs, both to Sense and Motion. And as this plainly appears to be Matter of Fact, 'tis the more surprising, that the drinking of pure Water, which is so conducive to the Preservation both of Life and Health, should be so perversely, and, as it were, unnaturally nauseated by the People of our Country, whilst it is as strongly coveted and admired in other Nations. Such Malt Liquors as are thick, and highly nutritive, lay the Foundations of many Disorders among the Inhabitants of Northern Countries, more particularly where the Use of Brandies, Spirits, and Strong Waters, prevails. It is certainly much better for all Persons of delicate Constitutions, and sedentary Lives, to accustom themselves to the drinking of the finest and purest Water, either alone, or mixed with Wine, to render it more acceptable.

Having thus considered the singular Efficacy of Water, by way of Prevention, we come next to examine what it will perform in the Cure of Diseases. Physicians divide all Distempers into Acute and Chronical. Of the Acute Kind, the principal are Fevers; which from the Structure of the Body, and the Law of Motion, appear to be an Increase of the Blood's Velocity and Force, so as to distend both the solid, or fibrous

and



and fluid Parts of the Body beyond their natural Size; this Increase of Motion having a Tendency either to overcome and discharge the Cause of the Disorder, or to destroy the Machine itself. Whence there ensues either Recovery, Death, or a Depravation of some Parts of the Machine, when the Disease terminates in another. And thus Nature, which is often her own best Physician, sometimes also produces Diseases and Death. But here we must by no means confound the rational Soul with Nature, which is a Word we use to signify the Structure, Mechanism, and Contrivance of the Body, acting with certain Powers, according to certain necessary and mechanical Laws, assigned it by its Maker. A Physician therefore, in the present imperfect State of Medicine, can do no more than supply a proper Matter to this augmented Motion in continued Fevers, during the whole Time they thus regularly continue; for they have their own natural Periods, that cannot hitherto be safely stopped by Art. This increased Motion and Distention is attended with a great Heat, which violently dissipates the fluid Part of the Blood and Juices, so necessary to Life; whence the principal Intention is to supply this fluid Part, in proportion as it wastes. And as the Tendency of this increased Motion is to break through the Obstructions, that cause the Disorder, the Blood can by no means make its way, unless sufficiently thinned and diluted with a proper Fluid; but, thus assisted, it may allay the Heat and Inflammation, propel the stagnating Juices, and discharge the offending Matter that causes the Mischief. And Experience shews, that if Water be not the only thing, there is no better Remedy yet found for this kind of Fever, than a free and large Use thereof. Whence *Hippocrates*, and others, highly recommend an aqueous Ptilan for this Purpose. And accordingly, by this alone, with the Assistance of Rest, and temperate Warmth, the most violent Fevers have frequently been cured, without any other Medicine. All that the best Physicians do in these Cases, is either to bleed at the Beginning, where the Body is full; or to exhibit an Emetic, if the Distemper is seated in the first Passages; or to prescribe a Sudorific, in order to expel the offending Cause, in the most expeditious manner; but after this, through the whole Course of the Distemper, they give nothing more than cooling, moistening, and perspirative Remedies. The Caution required in the Use of Water for this Distemper, is not to give it too cold, especially near the Crisis, and when there is Reason to fear an Inflammation in the first Passages, nor when the Body is stiff and rigid, and the external Parts parched and bound up; but to wait for the Time when there appears a Disposition to sweat; for then 'tis ever proper to give Water in a large Quantity.

This is agreeable to the Advice of the best Physicians, and particularly insisted on by *Comenius*, in his excellent Discourse of Fevers.

Those called Chronical Diseases generally arise from an Obstruction of the Viscera and glandulous Parts, or a Surcharge and Foulness of the Juices, with a Stagnation thereof in the larger Vessels; all which, according to the Rules both of Reason and Experience, are therefore to be removed in order to a Cure: But to procure this Effect, there is not a more serviceable Remedy than pure Water. How eminently serviceable the Medicinal Waters, both of hot and cold Springs, are, for this Purpose, is a thing manifest by Experience. But the greater Part of their Efficacy, in this respect, is, beyond all Dispute, owing to the Quantity of pure elementary Water they contain; for it were insignificant to exhibit in these Distempers the mineral volatile Spirit, and the Salt, which such Waters contain, without that purely aqueous Part. And accordingly there are numerous Instances of pure and light Water, which, without containing any Mineral Ingredients, prove of extraordinary Efficacy in the Cure of Chronical Diseases. The Effect therefore can possibly be ascribed to nothing else, but the pure Water. Of this Kind there are numerous Springs in *Germany*, the Waters whereof, being pure and subtle, tho' plentifully abounding with Air and Æther, prove curative of most Chronical Distempers; particularly the Stone, the Gout, the Rheumatism, the Scurvy, and Weakness in the Limbs; and by procuring the requisite Fluidity to the Humours, they remedy Suppressions of the Hemorrhoids and Menstrues.

As there is therefore sufficient Reason to persuade us, that the Wholesomeness of many Springs depends upon the Goodness of their Waters, it follows, that where other pure Waters are procurable, these likewise will have the same Effects. And this also is confirmed by Experience, as may appear from the Testimonies of *Riverius*, *Oper. Lib. 4. Cap. 24. Celsus, Lib. 1. Cap. 15. Ballonius, Lib. 1. Epidem. p. 106. Sylvaticus, Cap. 1. Observat. 1. Martianus, Rondeletius, Avicenna, Lib. 1. Sect. 2. Cass. 16. p. 102.* and others, who shew, that the drinking of Water has cured Obstructions of the Menstrues, the Head-ach, Ophthalmias, Colds, Rheums, Inflammations, the Gout, the Colic, &c. being used either cold or warm, as the Stomach can bear, or the weak State of the Nerves requires.

Of what singular Efficacy pure hot Water is, both by way of Preservative and Cure, appears from the Nature and Use

of Tea-drinking: For 'tis certainly a Mistake to attribute all the good Effects of Tea to the Leaves of the Plant. The principal Virtue of this Infusion is doubtless owing to the Quantity of the pure hot Water employed in the Making; whilst the Herb by its Astringency prevents the Fibres of the Body from being too much relaxed and weakened thereby. Therefore, as numerous Diseases are attended with a strong Contraction of the Fibres, all Physicians, who are well versed in Practice, will be cautious of indulging too free an Use of this astringent Ingredient in such Cases.

That Tea is an Astringent or Styptic Plant, appears by several Experiments, as particularly because, like Oak-bark, Balsamines, and other astringent Vegetables, it turns inky with a Solution of Iron, or the Chalybeate Waters. See *THEA*.

And, to speak a serviceable Truth, we have in our own Country many Plants, whose Virtues far exceed those of the *Indian Tea*: And Choice should be made of these Plants for Medicinal Use, according to the Difference of Distempers. Thus, for Example, in Diseases of the Breast, Paul's Betony is proper; common Betony, in Disorders of the Nerves; Baum and Pennyroyal, in Disorders of the Uterus; Ground-ivy, in Ulcers of the Kidneys; Buck-bean, in the Scurvy, &c. being severally made into Tea, with the purest Water, and drank hot. Again, common Chamomile may be advantageously used in the way of Tea, against the Colic; Parsley, in the Stone; the Ranunculus, in the moist Asthma. Rosemary Tea is by many recommended as excellent in nervous Diseases, viz. the Epilepsy, Palsy, and Apoplexy; and for defending the Body, and preventing the catching of Cold; especially if made with the Flowers of the Plant. But, in all Tea, 'tis a Caution of Moment, that the Water designed for the Infusion be not long boiled, but immediately poured upon the Plant as soon as it simmers strongly, in order to prevent the Loss of its more subtle Parts.

It remains, that we shew Water to be an universal Remedy, as it agrees not only with all Constitutions, but in all the Indications of Distempers. And, first, the Drinking of Water is serviceable in every Complexion. In the Sanguine, and those of a soft Habit of Body, who have but few of the finest kind of Vessels, it causes the Blood and Juices to circulate freely; which in this Constitution would otherwise flow but slowly, and so be subject to generate Obstructions in the Viscera. In bilious Habits, where the Humours are in brisk Motion, it allays the excessive Heat, which would otherwise evaporate the unctuous Parts of the Blood through the widened Tubes and Pores of the Body. It likewise proves extremely serviceable, by diluting and thinning the Viscidity of the Blood and Juices, in Persons of melancholy and phlegmatic Constitutions.

Again, Water proves agreeable to Persons of all Ages. Children are frequently subject to violent Disorders from the Viscidity and Acrimony of the Milk they feed on, in which Case, besides Absorbents, diluting aqueous Remedies are of great Service. In Youth, the Surcharge and Thickness of the nutritious Humours produce various Diseases; such as Colds, and Eruptions of the Skin, which are excellently remedied by the Use of diluting Liquors. And the same holds true of the Diseases of grown Persons, and Persons in Years; in all which the drinking of Water is serviceable. For Men of full Growth are very subject to Inflammations and Fevers, and old Men to such Disorders as proceed from Stoppages and Obstructions; in which Circumstances, there can nothing be given more proper than the finest Water, either hot or cold. We find, by daily Experience, what severe Disorders are occasion'd by Irregularity in the Menstrual and Hemorrhoidal Flux, to reduce which to their natural Periods, and preserve them in their proper Course, I am convinced from practical Observations, that nothing is more effectual than diluting aqueous Remedies.

'Tis well known, that a Fulness of Blood and Juices brings on many Distempers; but, to prevent this Fulness, the most appropriated thing is hot Water, made into an Infusion with Herbs; which thus, by dissolving the glutinous Humours, prevents the Mass of Blood from increasing too fast. A free Use of Water is no less serviceable in purifying bad Juices; as it readily washes off their impure saline, and gross Parts, through all the excretory Passages of the Body. Besides this, the drinking of Water promotes all the Evacuations, preserves the Belly soluble, keeps the urinary Passages open, washes and cleanses the same from the Adhesion of gravelly or stony Matter, and powerfully promotes that most healthy Discharge of insensible Perspiration. Lastly, Water is the effectual Vehicle of all other Remedies. Thus Antiscorbutics, and vegetable Medicines appropriated to cleanse the Blood, prove of little Service in correcting the Depravities of the Humours, unless by the Assistance of Water their Virtue be carried into the Juices and remote Parts of the Body, in the Form of Decoctions or Infusions. To sum up all, in whatever Cases there is a Necessity either for altering, evacuating, opening, or resolving, Water is at all times the best of Remedies.

As Water is thus extensively useful, it may be proper to observe, that they who cannot procure the purest and best Sort thereof



thereof for Medicinal Use, must serve themselves with such Rain or River-water as can be had ; but if these be not obtainable in tolerable Purity, the best way is to distil them ; or else, upon a slight boiling, to correct them, by the Addition of calcin'd Hartshorn. It is doubtless a singular Benefit of Nature, to have large Cities and Countries well watered with wholesome Springs, which thus bountifully supply so much better Remedies than those of the Shops. If every prudent and disinterested Physician would carefully examine into the Waters of the Place where he resides, he might thence assuredly practise more to the Satisfaction of himself, and Service of his Patients, than in the common way, by the miscellaneous Use of numberless uncertain Remedies. *F. Hoffman.*

From what has been said above, the great Uses and Advantages of drinking Water, both with respect to the Prevention and Cure of Diseases, will be sufficiently evident to every intelligent Reader. I shall now proceed to consider distill'd Waters.

#### *Of Distilled and Medicated Waters.*

The Waters ordered to be kept in the Shops are either *simple, compound, or medicated*. There are several ways of procuring simple Waters from Plants by Distillation, suited to the Natures of the particular Vegetables made use of. The Instruments usually employ'd in the Distillation of simple Waters, are of two Kinds, commonly call'd the hot and the cold Still. The Contrivance of the first of these is sufficiently in every one's Acquaintance, so as to want no Description ; and the Reason why it hath been called the cold Still, seems to be, because no more Heat is required than to raise a Vapour, which is returned down slowly by Drops into a Receiver. The other is a Copper Vessel, worked by a strong Fire, which boils the Materials, and sends over the most volatile Parts in an hot Steam, which is condensed, and cooled in its Descent by a long spiral Pipe, contained in a Vessel of cold Water, called its Refrigeratory, from whence it falls in a continual Stream.

The first of these seems best fitted to draw off the Virtues of those Simples, which are valued for their fine Flavour when green, which is very subject to be lost in drying. Thus Baum, Meadow-sweet, damask or white Roses, and all things of the like Properties in this respect, give over much finer scented Waters this way, than by the hot Still ; the Heat there required, and the Quantity of Water necessary to prevent their burning to the Still, very much injuring their natural Flavours. But when thus managed, they require no Water to be put to them, nor to be bruised, but should be committed to the Still, just as they are fresh gathered ; and as much is to be drawn off as their natural Moisture will allow ; the Fire required in this Case being not sufficient to cause an Empyreuma, because it is only just enough to make the Top of the Still moderately warm. Whoever hath seen what in the Shops is called a Rose-cake, may easily conceive in what Condition the Materials are left, which are thus distill'd. And as to the Damask-roses in particular, after they have been thus treated, they will give to a Decoction all their purgative Virtue, and make the Syrup ordered with them better than when managed any other way. And it is not only very remarkable concerning Materials thus to be ordered, that they are hurt by the least Mixture of Water, which makes it a Rule to gather them dry, whilst the Sun is upon them, and commit them forthwith to the Still, in order to have their Scents in Perfection ; but that even bruising them destroys their fine Flavour, as any one may be easily convinced by Trial. *Boerhaave*, however, directs these Vegetables to be gather'd with the Dew upon them.

But the latter Contrivance of the hot Still seems best calculated to raise those Materials which have vigorous, strong Scents, and which will not be injured by Fire, or any Mixture of common Water with them, such as Hyssop, Pennyroyal, and the like, which from their natural Production have something hot and fiery in them. But then we are taught by common Experience, that these give over their Virtues this way much better when dried, than when green, as every one may observe in Infusion or Decoction of these things ; for, when green, they make either of them more foul, and yield less Taste of the Plant, than when dried ; and the Water so drawn hath the same Disadvantages.

That Diversity in the Materials coming under this Management, which requires such different Treatment, seems chiefly to consist in this : The lighter and finer scented Plants, whose natural Flavours cannot be preserved to them in drying, and which we most covet to preserve in their distill'd Waters, are best ordered by a slow Heat, without any Mixture ; because by their drying, it appears, that their proper Juices are the best and only Vehicles for those Flavours. But Things, whose Scents and Medicinal Properties consist in somewhat more gross and fixed than will exhale with their natural Moistures, do better give out to common Water, by Infusion, those very Parts which we want to force from them by Distillation ; and in nothing are we more obviously directed by Nature, than in this Procedure. Where we want to blend something into this Form,

that is so light and volatile, as not to subsist in open Air any longer than it is in its Growth, it is certainly best removed from the Condition Nature left it in, into an Instrument, where, as it dries, those volatile Parts can be collected and preserved. And what we call the cold Still is such an Instrument, where the drying of the Plant or Flower is only forwarded by a moderate Warmth ; and all that arises from it, is saved for the Purposes of Medicine. But when what we want from a Plant is not volatile enough to rise with its natural Juice in leisurely drying, it is highly reasonable to think this way insufficient to raise it, and therefore we must have recourse to such Means as have been taken Notice of in the other Process of the hot Still. *Quincy's Preface.*

#### *An Example of a Water procur'd by the cold Still, from Boerhaave.*

Take Rosemary, fresh gather'd, in its Perfection, with the Morning Dew upon it, and lay it lightly and unbruised upon the broad round Plate within the common cylindrical Furnace, the Plate being first made clean, and fixed at the Height of two or three Inches. Then cover the Furnace with its large conical Still-head, and apply a Glass Receiver to the Nose thereof. In the Fire-place of the Furnace put a lighted Coal, that does not smoke, and raise an equable Degree of Heat, not exceeding eighty-five Degrees on *Fahrenheit's* Thermometer ; and let this Heat be kept up so long as any Liquor comes over. Then taking away the Plant, put in fresh, and proceed as before ; continuing to do this successively, till a sufficient Quantity of the Water be procured. Let this distilled Liquor be kept at Rest, in a clean Glass, close stopped, for some Days, in a cold Place ; whereby it will become limpid, and have the Taste and Odour of the Plant.

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In this Water are contained the Liquor of Dew, consisting of its own proper Parts, which are difficultly separated from the Plant, and cleave to it even in the drying. This Dew also, by sticking to the Outside, receives the liquid Parts of the Plant, which being elaborated the Day before, and exhaling in the Night, are hereby detained ; so that they concrete together into one external Liquid, which is often viscid, as appears in Wax, Manna, Honey, &c. This Water also contains the Fluid which exhales from the Vessels of the Rosemary, and which principally consists of simple Water, as appears upon long standing in an open Vessel, when the Taste and Odour vanishing, leave an insipid Water behind. Another Part of this Water is that subtle, volatile Substance, which gives the Plant its peculiar Taste and Odour ; for these the Senses discover in it ; but the Remains of the Process scarce afford any thing thereof. This same Water seems also to contain Seeds, or other little Bodies, which in a certain time usually grows into a kind of thin, whitish Weed, suspended in the Middle of the Water ; and, daily increasing or spreading itself, becomes a Mucilage, which did not appear at first.

I have kept these Waters undisturbed in separate well-closed Vessels, and observed, that in a Year's time, they began to appear thick, which Thickness gradually increased every Year, till at length the whole Liquor grew roapy or mucilaginous. Hence this Water contains the elementary Water, and presiding Spirit of the Plant, a Spirit small in Bulk, but rich in Virtue, and exhibiting the specific Smell and Taste of the Subject. This Water, therefore, in exhaling, proves a Vehicle to that Spirit which contains in a small, subtle, extremely volatile, and thence easily separable Substance, the particular Virtue of the Plant, leaving the Remainder exhausted in this respect : And hence proceeds the Medicinal Virtue of these Waters, which principally depends upon their native Spirit. For this Spirit, having a brisk Mobility in most Plants, affects the Nerves, and raises the Spirits in case of their Depression. But besides this common Principle of Action, Plants have another peculiarly appropriated to each, and of wonderful Efficacy : This, in the Language of *Paracelsus*, is called their *Appropriated Essence*.

The odoriferous Scents, both of Lavender and of Baum, agree in this, that they excite the languid Nerves ; but the Spirit of Lavender, besides this, has another particular Virtue, and so has Baum. From the Virtue of Plants proceed wonderful Effects in the Body, which can only be learnt from a faithful History of Plants, where their Virtues, founded upon Experience, are delivered. This peculiar Virtue has often a contrary Effect to the common. The *Indian Hyacinth* has an extremely fragrant Odour, but excites strange Spasms in Hypochondriacal Men, and Hysterical Women. Rue also diffuses a very strong Scent, which cures the Spasms occasioned by the former Odour.

We must also observe, that human Industry has discovered, that this fine Vapour of Plants is productive of those strange Effects occasioned by vegetable Concretes, as well in the way



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of Evacuants, as Alteratives ; because if this alone be totally separated from Medicinal or Poisonous Plants, the Remainder, tho' without almost any sensible Loss of Weight, loses all that Efficacy. Hence a Chymist should be cautious and reserved in assigning the Virtues of these Waters, and learn for some time before he pronounces with Certainty. From these Observations we may say, that these Waters will frequently cure Fainting, and prove agreeable in the way of Perfume ; for nothing more directly proves more refreshing, and enlivening to the Brain and Spirits, than such a Water of Baum or Rue, each of them full of the respective Spirit of the Plants.

If the Vessel be close stopped, and set in a cool Place, the Waters will retain their Virtues for a Year ; but if negligently kept, or any Crack should happen in the Glass, their extremely volatile Spirit secretly flies off, and leaves the Water vapid. Our Experiment also shews us, what it is which Plants lose by being dry'd in the Summer's Sun, viz. The Water, and the Spirit we have been describing. Hence also we know the Nature of that Fluid, which first rises from Plants in Distillation, and what that Matter properly is in Plants, which gives their peculiar Odour, that is, their presiding Spirit. Lastly, we hence learn, in some measure, what those Effluvia are, which principally, in the Summer Season, and the open Air, exhale from Vegetables ; for it is highly probable, that these constant Exhalations of Plants, especially in the Day-time, have a great Agreement in their peculiar Nature with the Liquor produced in our present Process, tho' differing in this, that the Exhalation is made from Parts continually recruited by the Root ; whilst in our Experiment those Parts alone are collected, which are driven off from the Plants, after being gathered, and no longer supplied with fresh Nourishment. Whence the diligent and ingenious Dr. Hales observes, in his *Vegetable Statics*, that the Distillation of the Juice received in Glass Vessels, artificially applied to recent Incisions of Plants, in the Summer Season, is of a different Kind from common Distillations.

Hence we may understand, that the various, peculiar, and often surprising Virtues of Plants, may be widely diffused thro' the Air, and carried to a vast Distance by the Winds. So that we must not presently account as Fables what we find related in the History of Plants, concerning the surprising Effects of Effluvia. The Shade of the Walnut gives the Head-ach, and makes the Body costive. The Effluvia of the Poppy procure Sleep. The Vapour of the Yew-tree is reputed mortal to those who sleep under it ; and the Smell of Bean-blossoms, if long continued, disorders the Senses. The strong Action of the Sun upon Plants certainly raises Exhalations of great Efficacy, by means of the Spirits they diffuse ; and the Motions of the Winds carry them to a great Distance. The dark Shades of thick Woods, where Vapours are contracted, occasion various Diseases, and often Death, to those who reside among them, as appears by melancholy Examples in *America*, which abounds with poisonous Trees. For this Spirit of Plants is a thing peculiar to each Species, absolutely inimitable, nor producible by Art : It has therefore Virtues peculiar to itself, but such as are strangely agreeable to the human Spirits. But because the Spirits of some Plants are very manifest to the Senses, whilst those of others scarce affect our Organs of Smell and Taste by any sensible Action, the Chymists have chiefly destin'd to this first Process those Plants which are remarkable for their grateful Odour. Such as those of the following short Catalogue, for Example, taken from the *European* Officials, and a few of the *Indian*.

## P L A N T S.

Angelica,	Fennel,
Anise,	Feverfew,
Basil,	Galangal,
Baum,	The Garlicks;
Bays,	Heartwort,
The Calamints,	Hyslop,
Calamus Aromaticus,	Jellamine,
Caraway,	Lavender,
Cardamon,	Leeks,
Cassia Aromatica,	Lemons,
Catmint,	Lily of the Valley,
Celeri,	Lily-white,
Chamomile,	Lovage,
Chervil,	Mace,
Cinnamon,	Marjoram,
Citron,	Marum Syriacum,
Clary,	Masterwort,
Clove July-flowers,	Mastichina, common Ma-
Coriander,	rum,
Cressés,	The Maudlin Tansies,
Cumin,	Melilot,
Dill,	Mint,
Dittany,	Motherwort,

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Nutmeg,	Scurvy-grafs,
Onions,	The Southern-woods,
Orange,	Spignel,
Origanum,	Tansy,
<i>Philadelphus Athenæi</i> , or	Tuberoze,
single white Pipe-tree,	Valerian,
Polium,	Viétorialis,
Roses,	Violet,
Saffron,	Walnut,
Sage,	Wild Thyme.
Savory,	

## T R E E S.

Bay,	Mastich,
Benjamin,	Myrtle,
Box,	Orange,
Cedar,	Peach,
Citron,	Pine,
Elder,	Rose,
Fir,	Sassafras,
Guaiaicum,	Savin,
Juniper,	Storax,
Lemon,	Thuya, or Life-tree,
Lime,	Walnut.

Several of these Trees contain, in their different Parts, an aromatic, volatile Matter, which may be obtained in this first Operation ; for sometimes their peculiar Virtue resides in the Root, as the camphorated Balsam in the Cinnamon-root ; or in the Wood, as in the Rhodium Wood ; in the Bark, as in Cinnamon ; in the Catkins, as in Walnuts ; and frequently in the Flowers, Leaves, and Seeds : Again, in the Waters that distil from them, as in the Walnut ; in their Balsams, Gums, Tears, and Rosins, as in the Balsamic Trees. *Boerhaave's Chymistry, Vol. 2. Process 1.*

The much greater Tedioufness and Expence of working with the cold than the hot Still, makes very few care to comply with it ; so that where any thing of Moment is depended upon from this particular way, great Care ought to be taken not to be deceived therein.

But to avoid the Tedioufness of the one, and the Inconveniences of the other, of these ways, there hath lately obtained a Contrivance something between both, which is by suspending in a Copper Still, conveniently filled with Water, a Pewter Body, which is to hold the Materials to be drawn off ; an Head is fitted to the latter, which joins to a spiral Worm, in a Refrigeratory of cold Water, as in the common hot Still. Ingredients thus distilled, which is in *Balneo*, have a greater Heat given them than in the cold Still ; and yet by the Interposition of the Water, in which the Vessel containing them is suspended, they have not the Fire so forcibly acting upon them, as in the common way of the hot Still : So that all those things which require a middle Way between the other two, are hereby well provided for, as, amongst the Simples, Mint, Angelica, Chamomile, and some others which are of a Texture between very volatile and very fixed. And amongst the Compositions, the *Aqua Lactis Alexiteria*, the softer Snail-waters, and those of similar Properties ; but neither the very fine-scented Simples, nor the heavier Compounds, can be thus ordered, but to Disadvantage.

One of the greatest Advantages of this Contrivance is, that Waters so drawn come over much cooler than from the hot Still, that is, they have not so much of the Fire in them (as it is commonly termed) ; so that an hot spicy Water, thus ordered, shall taste as cool upon the Palate when just drawn, as in the other way it would do after it had acquired a considerable Age. But another great Benefit is likewise obtained this way, and that is, the avoiding that Foulness in the Water coming over, which arises from too great Proportions of oily Ingredients in the ordinary Distillation : For tho' a Composition be considerably overcharged with things of this Disposition, yet, by the Relaxation of Heat in this Contrivance, they are so much less forced over, that the Water will be much finer. Yet, whether a Diminution in the Quantity of Ingredients, or in the Force to raise them, is the more eligible way to avoid this Inconvenience, I will not pretend to determine ; though I most incline to the latter, because, without doubt, they are the finer Parts of the Aromatics which first rise, and consequently they must be best which come over with the least Force. But this way is practicable only with those Waters which are to come over highly spirituous, because there is not here Force enough to raise the others.

In this View, if we pass over the simple Waters wherein we are directed to draw these Properties, we shall find, that both the Wormwoods, the Carduus, and the Fumitory, are in no respect fitted for this Management : As to the first, if they have any Scent that will come over, it is so much the worse ; because they are to most very offensive, especially that of the common Wormwood ; and all of them have their Medicinal



Medicinal Virtues only in a bitter, earthy Salt, that will not rise in the Still, and is to be come at only by Decoction. Celandine, Parsley, and Saxifrage, have nothing in them volatile to send over in Distillation, but abound with a nitrous Salt, that proves diuretic, when order'd in proper Forms; and the Plantain and Oak-buds yield only a viscid, mucilaginous Juice, which will afford nothing over the Helm but an insipid Phlegm, that will soon mother and grow ropy. The same is chargeable upon the Frogspawn, Succory, and Eyebright, which likewise give over nothing discernible in a Water; and what comes from Fennel soon grows rank, and is so ill-scented as not to be endur'd, besides its Aptness to grow ropy. From Flowers, as those of Oranges, Chamomile, Rosemary, Damask-roses, and Elder, the most fragrant Waters are procurable; but from the rest very little of Value. The Citron-peel also, among the Fruits, makes a most delightful Water; but neither Raspberries nor Walnuts send over any thing that will smell, taste, or keep. The Water from black Cherries seems, by much, the best we have in the Shops for a Vehicle; the Kernels give it an agreeable Flavour, and there is so much of a Spirit in the Juice as preserves it the Year round, when carefully distill'd, without Decay: But this we are frequently cheated in, some making it from the Stones only, which those, who express the Juice for other Purposes, sell at a cheap Rate; tho' those taken out from Brandy, where the Stone hath not been before broken, make this Water well enough; but some are not contented only with these Pieces of good Husbandry, but make it from other Kernels, and often from nothing but bitter Almonds. These Frauds are not easily discover'd, unless the substituted Materials be crouded in such Quantities, (which commonly happens from the Encouragement of their Cheapness) that they shew a Foulness which is not at all perceivable in the genuine Water.

It may indeed, in some Cases, with good Reason, be requir'd to have simple Waters under the Denomination of Coolers, or such as have no other Property than being soft Vehicles to other Things; and these are best procur'd from inodorous or soft Substances, as Plantain, Frogspawn, and the like: And certainly, a distill'd Water is more strictly and simply elementary, and more a Diluter, than any other; but it is almost impossible to keep these the Year round, which can be had only from Vegetables at certain Seasons; and therefore such as are desir'd for mere Diluters, or Coolers, may possibly be had fresher drawn, at any Season, from Substances of like Smoothness and Texture. The simple Waters, indeed, from the lighter scented Plants, as Baum, and the like, are very subject to the same Decay; but that may, in some measure, be remedy'd by sprinkling the green Herb, before it is put in the Still, with a little Spirit, which will be so far from a Prejudice to the Flavour of the Water, that it will rather help and improve it. *Quincey's Pract. Pharm.*

*Example of a distill'd Water of a fresh Plant, by the Alembic, shewn in Rosemary. From Boerhaave.*

We are now to inquire into that Part of Vegetables, which, being separated by the Heat of boiling Water, flies off into the Air. The most commodious Operation for this Process, is that perform'd by a still Head, closely fitted in to the Mouth of a Vessel, so as to collect and condense the Vapour arising by a boiling Heat, and transmit it without Loss into a Receiver. We are now to collect whatever flies off from a recent Plant, by the natural Degree of the Summer's Heat, up to that of two hundred and fourteen Degrees: And for this Purpose we shall again make Choice of Rosemary, that the Operation may be duly compared with that given above upon the same Subject; tho', instead of this, any other of the sapid and odorous Plants, enumerated as fit Subjects for the preceding Process, might be here employ'd, all which contain an inflammable, oily, and a fixable saline Part, as also a saponaceous one, consisting of the two. The Plants design'd for this Operation are to be gather'd when their Leaves are at full Growth, and a little before the Flowers appear, or before the Seed comes on; because the Virtue of the Subject, expected in these Waters, is often little, after the Seed or Fruit is form'd, at which time Plants begin to languish: The Morning is best to gather them in, because the volatile Parts are then condensed by the Coldness of the Night, and kept in by the Tenacity of the Dew, not yet exhaled by the Sun. This is understood, when the Virtue of the distill'd Water principally resides in the Leaves of Plants, as it does in Mint, Majoram, Pennyroyal, Rue, and many more; but the Case differs, when the aromatic Virtue is only found in the Flowers, as in Roses, Lilies of the Valley, &c. in which Case we choose their flowery Parts, whilst they smell the sweetest, which should be gather'd before they are quite open'd, or begin to shed; the Morning Dew still hanging upon them. In other Plants the Seeds are to be preferr'd, as in Anise, Caraway, Cummin, &c. where the Herb and the Flower are indolent, but the whole Virtue remains in the Seed alone, where it manifests itself by its remarkable Fragrance, and aromatic Taste. We find Seeds chiefly possess'd of this Virtue when come to

perfect Maturity. We must not omit, that these desirable Properties are found only in the Roots of certain Plants, as appears in Avena, and in Orpine, whose Root smells like a Rose; and here the Roots should be gather'd, for the present Purpose, at that time when they are richest in these Virtues, which is generally at that Season of the Year just before they begin to sprout, when they are to be dug up in a Morning. If the Virtue here requir'd be contain'd in the Barks or Woods of Vegetables, then these Parts are to be chosen for the Purpose.

1. The Subject being chosen, let it be bruised, or cut, if there be Occasion, and with it fill two Thirds of a Still, leaving a third Part of it empty, without squeezing the Matter close; then pour as much fresh Rain-water upon it as will fill the Still to the same Height, that is, two Thirds, together with the Plant: Fit on the Head exactly to the Neck of the Still, so that no Vapour may pass thro' the Juncture, which the Copper-smiths can order to Perfection. Let the joining of the Nose of the Still-head to the Worm be luted with a stiff Paste, made of Linseed-meal and Water. Observe, that the Cavity of the Worm be always cleansed by passing fair boiling Water thro' it, lest otherwise the distill'd Water should be foul'd. Apply a Receiver to the Bottom of the Worm, that no Vapour may fly off in the Distillation; but that all the Liquor, being cool'd in the Worm-tub fill'd with cold Water, may be collected; which is best perform'd by keeping the Worm-tub continually supplied with cold Water.

2. Things being in this State, digest for twenty-four Hours with a moderate Degree of Heat, of 150 Degrees. Afterwards raise the Fire, so as to make the Water and the Plant boil; which may be known by a certain hissing Noise, proceeding from the breaking Bubbles of the boiling Matter; as also by the Pipe of the Still-head, or the upper End of the Worm, becoming too hot to be handled; or the Smoking of the Water in the Worm-tub, heated by the Top of the Worm; and lastly, by the following of one Drop immediately after another, from the Nose of the Worm, so as to make an almost continued Stream. By all which Signs we know, that the requisite Heat is given; and if it be less than a gentle Degree of Ebullition, the Virtue here expected will not be rais'd: But when the Fire is too great, the Matter hastily rises into the Still-head, and fouls the Worm and the distill'd Liquor; and the Plant being also rais'd, it blocks up the Worm; for which Reason it is proper to place a Piece of fine Linen, artificially, at the End of the Still-head Pipe, that, in case of this Accident, the Plant may be kept from stopping up the Worm. But, even in this Case, if the Fire be too violent, it will throw up the Herbs into the Still-head Pipe; whence the Passage being stopp'd, the rising Vapour will forcibly blow off the Head, and throw the Liquor and Steam about, so as to do much Mischief, or even to suffocate the Operator, without a proper Caution; and the more oily, tenacious, gummy, or resinous the Subject is, and consequently the more frothy and explosive, the greater Danger there is, in case of this Accident.

3. Let the due Degree of Heat therefore be carefully observ'd, and equally kept up, so long as the Water, distilling into the Receiver, is white, thick, odorous, sapid, frothy, and turbid; for this Water should be kept carefully separated from that which will follow it: Whence the Receiver must be often chang'd, that the Operator may be certain, that nothing but this first Water comes over; for there afterwards rises a Water that is transparent, thin, and without the peculiar Taste and Odour of the Plant, but generally somewhat tartish and limpid, tho' somewhat obscure'd and foul'd by white dreggy Matter: And if the Head of the Still be not tinn'd, the Acidity of this last Water causes it to dissolve the Copper, so as to become green, nauseous, emetic, and poisonous to those who use it, especially weak Persons and young Children, as operating both upwards and downwards, with severe Gripings. If such a Misfortune should happen, it is remedied by drinking plentifully of Milk, sweeten'd with Honey, or of the common emollient Decoctions.

4. The first Water, above describ'd, principally contains the Oil and presiding Spirit of the Plant, and always somewhat saline, which in most Plants is acid, but in the more pungent Antiscorbutics a volatile Alkali; for the Fire, by boiling the Subject, dissolves its Oil, and reduces it into small Particles, which are carried upwards by the Assistance of the Water, along with those Parts of the Plant that become volatile with this Motion. And if the Vessels are exactly closed, all these, being united together, will be discharg'd without Loss, and without much Alteration, into the Receiver annex'd; for, if we may trust our Senses, these Waters are richly impregnated with the Odour, Taste, and particular Virtues of the volatile Parts of Plants: Hence, if the Botanist justly assigns the Virtues of any Plant, as they are contain'd in that Part which is volatile by a boiling Heat, the Chymist can present those Virtues separated from the rest. The former was attempted by Mr. *Tournefort*, in his Book of Plants spontaneously growing about *Paris*; and by Mr. *Ray*, in his Book of the native Plants of *England*. *Dodonæus* has perhaps spoken too boldly, and sometimes rashly, of them all, especially in the last Edition of his Work, printed



at *Antwerp* in 1644. I have expressly observed, that the first of these distill'd Waters contains only the Virtues of the Plants, residing in that Part which is volatile with this Heat; because, in the whole mix'd Juice of the Plant, there is a certain Virtue depending upon a Mixture of this first Water, and the Liquor remaining after that is drawn off. The fresh express'd Juice of recent Mint has certainly many other distinct Properties than the distill'd Water thereof: Whence Physicians are to observe, that the Virtues of this Water, and of the native Juice, are not the same, but very different.

5. The Water of the second Running wants the volatile Part above describ'd, yet scarce brings over the more fix'd Part of the Plant, except what is somewhat acid and vapid: If, when this is come off, fresh Rain-water be pour'd upon the remaining Plant, and boil'd therewith, or strongly distill'd, there rises a more acid Water, containing very little of the particular Virtue of the Plant; almost the same kind of Acidity appearing to rise thus from them all at last. This I may venture to affirm, upon Experience, that the Virtue of destroying Worms, which the more celebrated Physicians have justly attributed to certain distill'd Waters, depends upon this, that the Acid of the Water of the last Running dissolves the Copper, and thus acquires a Virtue not its own. This Operation, however, shews, that Plants contain an acid Salt so volatile as to rise and separate from the Subject, with 215 Degrees of Heat. But Experience shews, that the Water of this second Running has scarce any other Virtue than that of cooling; as may be safely tried by using a Glass Still-head instead of a Copper one, by which means the Inconvenience of its dissolving the Copper is prevented.

6. And this is the best Method of preparing the distill'd official Waters, provided the two Sorts be not mix'd together, for both of them would be spoil'd by such a Mixture; they also spoil with keeping, and will seldom remain perfect a Year.

## R E M A R K S.

We learn from the present Process,

1. What a Plant parts with by the Heat of boiling Water, that is, the Water of the preceding Process, the volatile Oil with its inherent Spirit, and a saline Acid.
2. What remains in the Still after the Separation of these three Parts; that is, the Extract, the Earth, and the Salts.
3. In what Part the Odour and Taste of a Plant reside; that is, in the Water, in the volatile Oil contained in this Water, and in the Spirit contain'd in this Oil.
4. Hence is easily known what exhales by boiling, both in Cookery and Pharmacy, and what remains behind. If Costmary, Chervil, Baum, or Smalage be boil'd in Broth, they lose their peculiar Smell and Taste, with the Virtues thereon depending, and only leave behind their common ungrateful Parts; but if cut small, and added to the Soup already prepared, and kept hot, but not boiling, in a Vessel close cover'd, so as to infuse for a while, they communicate their peculiar Virtues thereto. Cinnamon affords an extremely grateful Water, which surprisingly warms and exhilarates; but when this is all come over, there follows another that is acid and indolent, leaving an acid, austere, and cooling Decoction behind, resembling that of Oak-wood.
5. Hence it plainly appears at what time, with the same Force of Fire, quite contrary Virtues may arise from a Plant; for so long as a milky Water comes over from such Plants as are aromatic, so long the Water remains warming and attenuating; but when it comes thin and pellucid, it is acid and cooling.
6. In the last Place, we have hence the true Foundation for the conducting of Distillation; for if the Operation be stop'd as soon as ever the white Water ceases to run off, the Preparation will be valuable and perfect; but if, thro' a Desire of increasing that Quantity, more be drawn off, and so the latter acid Part be mix'd with the first Running, this spoils the Whole. We should here observe, by the way, that the distill'd Waters of inodorous Plants, which have no aromatic Sharpness, may yet leave very considerable Virtues, tho' the contrary is generally supposed: And again, that the native Virtues of Vegetables may thus, in some measure, be chang'd by the Boiling, from what they originally are. The Rosemary remaining in our present Process still appears green, and preserves its original Form; being only deprived of its native Smell and Taste.

*The common distill'd Water by the Alembic, cohobated or return'd back upon more of the fresh Plant.*

The preceding Process has shew'd, what Water and Fire may separate from a Plant in close Vessels, and what is left behind therein; but the present Process teaches a Method of opening Plants still farther, and treating them so as to obtain distill'd Waters much richer in those Virtues of the Subject, which were mention'd in the former Process.

Take the Plant and Liquor, remaining in the Still after the preceding Process, and press them strongly in a Strainer, that all the Decoction may be obtain'd, and with this mix all the Water before drawn over. Return this Mixture into the Still, and add to it as much of the same recent Subject as was employ'd before, and, if necessary, add likewise as much Water as may make up the former Proportion to the Plant: Now close the Vessels exactly, and digest the Whole, with 150 Degrees of Heat, for the Space of three Days and Nights, that the Herb, being so long steep'd in its own Liquor, may be open'd, loosen'd, and disposed the easier to part with its Virtues. This Digestion being so long continued, is of great Service; but if protracted too long, introduces a Change tending to Putrefaction. Let the Water now be distill'd off in the same manner as in the foregoing Process, only proceeding more cautiously, and somewhat more slowly at the first; because the Liquor in the Still being now thicker, more impregnated with the Plant, and therefore more flatulent, and apt to swell upon feeling the Fire, it easily boils over; but after about one half of the expected Water is come off, the Fire may be prudently rais'd. If the Rule before laid down be observed, and the Distillation be continued so long as the first Water, describ'd in the preceding Process, comes over, and then the Operation be immediately stopp'd, the Water so obtain'd will be whiter, thicker, more odorous, sapid, frothy, and turbid, than that of the last Process.

This Water also preserves its Virtue much longer, and contains it in greater Perfection, than that of the last Process; which shews us a way of concentrating the peculiar Virtue of Plants, so far as it resides in their volatile odorous Parts: So likewise the remaining Decoction in this Process is much stronger than in the former; and as the Operation may be repeated as often as one pleases, both the Water and the Decoction may, by several Repetitions, at length be made extremely rich; so that by this means excellent Medicines are procurable. Thus in the Year 1730. I distill'd Baum after this manner fourteen times successively, and found the Water at last had a balsamic Taste, and the perfect Fragrance of the Plant, so as to prove highly refreshing, even when barely smelt to, or tasted: And no Wonder, since the Virtue of many large Baskets of Baum was here concentrated, and brought within the Compass of a small Glass; and the Remainder also, at the Bottom of the Still, being inspissated, fill'd but another Glass, and proved grateful, austere, and strengthening; so that, by mixing the two together, the Virtues of the Plant might be thus highly concentrated, or brought into a very little room. This Process therefore does not only afford excellent Waters, but admirable Extracts also, which, when properly mix'd together, yield Medicines of such Efficacy as can scarce otherwise be imitated; for the native Virtues of Vegetables are little chang'd in this Operation, certainly less than in others; tho' it must be allow'd, that some Alteration is produced by so long a Continuation of the Boiling: But both the Odour, Taste, and Effects, demonstrate, that the Waters thus prepar'd, retain, in an high Degree, the specific Virtues of the Plant.

And hence it is certain, that the sought Medicinal Virtue of truly aromatic Vegetables resides in that Part of them which rises with the Heat of boiling Water; and that it is possible, by Art, to concentrate their Virtues, so that they should prove much more effectual than in the State they are naturally afforded: Nor is there any Limitation; for by continuing to repeat the Operation, the Virtues of Plants may be thus exalted to any Degree the Artist should think proper; which shews the extraordinary Power of Chymistry.

*Paracelsus* assures us he found, by Experience, that Baum is possess'd of so great a specific Virtue, as, by insinuating into the Humours of the Body, to restore a new youthful Vigour to the Aged, and by this means perfectly to cure the Gout; and *Isaac Hollandus* avouches the same. Now, if these Authors said true, I judged I might, by means of the present Process, procure the united Virtues of the Plant in their utmost Strength; and, indeed, I have in myself experienced extraordinary Effects of the Water so prepar'd, by taking it upon an empty Stomach. And, certainly, it has scarce its Equal in Hypochondriacal and Hysterical Disorders, the Chlorosis, and Palpitation of the Heart, as often as these Diseases proceed rather from a Disorder of the Spirits, than any Collection of morbid Matter; tho' it is indeed expensive. I have reduced dried Mint, by three or four Cohobations, into a balsamic penetrating Liquor, which becomes an incomparable and present Remedy for strengthening a weak Stomach, and curing Vomiting proceeding from a cold viscid Phlegm lodg'd about the Mouth thereof; as also in Lienteries. The Water I have in this manner prepar'd from Lemon-peel, has, by its Fragrance, its agreeably penetrating, and highly aromatic Taste and Virtue, immediately cured Flatulencies, Deliquiums, Paintings, and irregular Motions of the Heart, tho' taken in a very small Dose. The like Water, prepar'd by repeated Cohobations from recent Wormwood, has successfully supplied the want of Bile in the Body, stimulated all the languid

Vessels



Vessels that are assistant in forming the Chyle, and kill'd and expell'd Worms. The like Water, from the Leaves of Savine, has given an almost incredible Motion to the whole nervous System, so as to prove the most excellent of all Medicines, for promoting the Exclusion of the Fœtus, and the Discharge of the Menfes, and Hæmorrhoids. The cohobated Water of Rue can never be sufficiently recommended for the Cure of the Falling-sickness, the Hysterick Passion, for expelling Poison, and promoting of Sweat and Perspiration. I do not here mention the Water I have made from the Berries of the Juniper-tree, and the Leaves of the Arbor Vitæ; both of them successfully curing the Dropsy, as that from Chamomile-flowers cures Tertian Agues. It were endless to pursue these Waters thro' all the Variety of Subjects. I judge it manifest upon the Whole, that this is a true and excellent Method of obtaining the Chymical distill'd Waters. Some Rules, however, are required for applying these two general Examples to all Sorts of Herbs, which may require something peculiar. These Rules are as follow:

1. Let the aromatic, balsamic, oleaginous, resinous, gummo-resinous, and strong-smelling Plants, which long retain their natural Fragrance, such as Arbor Vitæ, Baum, Bay, Hyssop, Juniper, Marjoram, Mint, Origanum, Pennyroyal, Rosemary, Sage, &c. be gently dried a little in the Shade; then digest them, with the Quantity of Water already mentioned, for twenty Hours, in a close Vessel, with 150 Degrees of Heat, and afterwards distil in the Method above deliver'd, and thus they will afford excellent Waters.

2. When Waters are to be drawn from Barks, Roots, Seeds, and Woods, that are very dense, ponderous, tough, and resinous; let them be digested for three, four, or more Weeks, with ninety-six Degrees of Heat, in Vessels perfectly closed, with a proper Quantity of Salt and Water to open and prepare them better for Distillation: A considerable Quantity of Sea-salt is here added, partly to open the Subject the more, but chiefly to prevent Putrefaction, which otherwise would certainly happen in so long a Time, and with such a Heat, as is necessary in this Case, and so destroy the Odour, Taste, and Virtues required: And thus, for Example, may Waters be prepared from Aloes, Box, Cedar, Guaiacum, Juniper, Rhodium, and the like Woods.

3. Those Plants which diffuse their Odour to some Distance from them, and thus soon lose it, should immediately be distill'd after being gather'd in a proper Season, without any previous Digestion; thus Borage, Bugloss, Jessamin, white Lilies, Lilies of the Valley, Roses, &c. are hurt by Heat, Digestion, and lying in the Air. Some Woods also are injur'd in the same manner; thus the Shavings of Sassafras, by being boiled in Water, soon lose their Virtue, Taste, and Smell.

4. The astringent, nutrimental, healing, consolidating, emollient, farinaceous, gelatinous, cooling, and styptic Virtues of Plants are never, by this means, communicated to the distill'd Waters, but are to be sought either in the whole Plant, or its most fix'd Part. Whence Pharmacy should be reliev'd from the unnecessary Trouble of preparing such Waters; and, on the other hand, Physicians are diligently to be admonish'd to seek for such Virtues in the Infusions, Decoctions, and Extracts of such Plants. Would it not be ridiculous to expect any thing nutrimental in the indolent and vapid distill'd Water of Barley, or minc'd Capon's Flesh? Can any Man expect to find the excellent Virtues of Sorrel, in hot, lax, putrid, and bilious Constitutions, from the distill'd Water of this Plant? So again it were absurd to attribute the inimitable Virtues of Plantain to its distill'd Water. Such idle and childish Trifles are therefore to be rejected in the serious Arts of Chymistry and Medicine.

The Case is far otherwise in those Plants, whose real Virtue entirely resides in that Part which is separable by a Heat not exceeding 214 Degrees; for the Waters carefully prepared from these will contain all the Virtue which is lost in their Decoctions and Extracts. The celebrated Virtues of Lavender-flowers, Lilies of the Valley, and of Rue, against that Species of the Falling-sickness which proceeds from a Disturbance in the Motion of the nervous Fluid, reside in the distill'd Water, but are absolutely wanting in the Decoctions or Extracts; so, on the other hand, the anti-epileptic Virtue of Piony remains in the Decoction, but is wanting in the Water.

6. There are some Medicinal Plants whose Virtues reside in a Part which is volatile, with the aforesaid Degree of Heat, but so, that after these are raised by Distillation, the remaining Plant, and its Decoction, continue possessed of other Virtues, of great Medicinal Efficacy. Such Decoctions, therefore, are not to be thrown away, but to be inspissated with a moderate Heat, that they may be kept uncorrupted; for, being afterwards mix'd with the distill'd Water, the Virtues of both are thus united, and afford the whole Efficacy of the Plant: And of this kind are Chamomile, Carduus Benedictus, the lesser Centaury, Germander, Ground-pine, Mugwort, Rosemary, Sage, Scordium, Wormwood, &c. This Tribe of Herbs, indeed, are exalted by Fermentation, so as to afford the better Waters; but when their Decoctions come afterwards to be inspissated,

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they either have less, or a different kind of Virtue from the natural.

7. Acid, bitter, austere, sweet, and flat Tastes, rarely ascend from Plants in Distillation, but commonly remain in their Extracts, tho' they ascend from Chamomile, Wormwood, and a few more; but the Colour of Plants is scarce ever rais'd by Distillation, tho' we have a blue Colour in the Distillation of Chamomile, and a green one in that of Wormwood; but these Colours are rather in the Oil than in the Waters. The saponaceous Virtue, consisting in the Union of the Salt and Oil, never rises, but remains in the Extracts; and therefore Plants endow'd with this Virtue are not to be thus distill'd.

8. The following Vegetables scarce afford any thing of Use in their distill'd Waters; that is, Barberry, Beet, common Cherries, Colewort, Currans, Elder-berries, Endive, ripe Grapes, Ladies Mantle, Lettice, the Juices of Citrons, Lemons, Oranges, Purslain, Scorzonera, Sorrel, Strawberries, and Succory. There are also very contrary Virtues in the same Plant: Thus the distill'd Water of Cinnamon, of the First Running, is deobstruent, heating, enlivening, stimulating, and good in vomiting; but that of the Second Running astringent, cooling, and nauseous; whilst the Decoction remaining in the Still is of a dark-red Colour, opaque, thick, of an austere Taste, astringent, coagulating, and strengthening.

Simple Waters are directed by the College of Physicians to be drawn

#### From the Leaves and Buds of

Both the Wormwoods,	Baum,
Angelica,	Mint,
Carduus Benedictus,	Parsley,
Succory,	Plantain,
The greater Celandine,	Pennyroyal,
Eyebright,	Oak,
Fenil,	Rue,
Fumatory,	Saxifrage,
Hyssop,	Meadow-sweet.
Marjoram,	

#### From the Flowers of

Oranges,	Piony,	
Chamomile,	Rosemary,	
Beans,	White	} Roses.
Lilies of the Valley,	Red	
Elder,	Damask	
Red Poppies,	Limes.	
Cowslips,		

#### From the Fruits of

Citrons, the Peel,	Green Walnuts, and
Rasp-berries,	Black Cherries.

From twelve Pounds of the latter of which, bruised with the Stones, draw one Gallon.

#### From an Animal,

Frog's-spawn.

Quincy's London Dispensatory.

To these the *Edinburgh* Dispensatory adds

Mugwort and Savine.

The same Dispensatory orders the FROG-SPAWN WATER to be made thus:

Hang any Quantity of FROG-SPAWN in a Bag, so that the Water may run from it into a Vessel set underneath to receive it; and to every Pint of the Liquor, thus obtain'd, add a Dram of Roch-alum.

This is a much better Frog-spawn Water than we find order'd in other Dispensatories; the Addition of the Alum, and the manner of Preparation by Resolution, considerably increase its Virtues; whereas that obtain'd by bare Distillation gives us little more of the Spawn than its useless Phlegm. As it stands here, it seems design'd as a Cooler for external Uses.

The same Dispensatory very properly observes, that the Waters of those Plants which are obtainable to no good Purpose by Distillation, may be made by dissolving a proper Proportion of their essential Salt in Spring-water (*or rather in distill'd Water*).

The Method of making the AQUA LACTIS ALEXITERIA, *Alexiterial Milk Water*, is specify'd under the Article ALEXITERIA, which see.

AQUA CINNAMOMI TENUIS,

*Small Cinnamon-water*, is made by infusing twelve Ounces of Cinnamon in eight Pints of Water, and then distilling till the Liquor ceases to come over milky.

Another Simple-water has lately been introduced into Practice, not mention'd in any Dispensatory that I know of, under the Name of PEPPER-MINT WATER. This, I presume,



# AQU

is distill'd from the MENTHA SPICIS BREVIORIBUS ET HABITIORIBUS, FOLIIS MENTHÆ FUSCÆ, SAPORE FERVIDO PIPERIS of Ray's *Synopsis*; MENTHA SAXIFRAGA, ANGUSTIORE FOLIO, SPICATA, SAPORE ACRI FERVIDO, of Plukenet's *Almagest*. 129. MENTHA PIPERATA ACUTA of Petiver's *Herbarium Britannicum*; Pepper-mint.

This Water is extremely hot in the Mouth, and upon the Stomach; and therefore seems proper to warm, invigorate, and discuss Flatulencies, to destroy Acidities in the Stomach and Duodenum, and prevent Coagulations consequent thereto.

*Another Method of procuring a Water from Vegetables, by fermenting the Vegetable before Distillation, after the manner of Ludovicus.*

The Effects of Distillation, Digestion, and Cohobation, have sufficiently shewn us the Action of the Fire, limited by the Degree of boiling Water, in Distillation and Cohobation; and of a more gentle Fire, with Water, by Digestion. We now proceed to exhibit an elegant and useful Way of obtaining Virtues of Plants very little alter'd from what they naturally are, tho' render'd more penetrating and more volatile.

1. Take recent Rosemary, cut and bruise it, if that seems necessary; put it into a large Oak Cask, leaving a Space empty at the Top, of four Inches deep; then take as much Water as would, when added, fill the Cask to the same Height, including the Plant, and mix therein about an eighth Part of Honey, if it be cold Winter Weather; or a twelfth Part, if it be warm: In the Summer the like Quantity of coarse, unrefined Sugar might, to the same Purpose, be added instead of the Honey, or half an Ounce of Yeast added for each Pint of Water will have the same Effect; but I prefer the Honey used as described: Let the proper Quantity therefore of Honey and Water be warmed and poured upon the Plant in the Cask; let the Cask stand upright, and have its wide, upper Orifice, or Bung-hole, loosely cover'd with a wooden Cover; then set it in a wooden Chest, to be kept heated by means of a live Coal bury'd under light Ashes, so that the Liquor and Plant may feel a Heat of about eighty Degrees, which is afterwards to be constantly kept up, by covering the outside with Cloths, and due Regulation of the Fire, which must therefore be greater and more carefully attended in cold Weather; but in the Heat of Summer, little or no Fire is requir'd. On the second Day a hissing Noise will begin in the Liquor, with Bubbles, Frothing, and a grateful Smell of Rosemary, the Plant now again rising to the Surface: This Motion is called *Fermentation*.
2. When this Fermentation has continu'd so long, that what was on the Top begins to subside and sink to the Bottom, the Operation is continu'd long enough for our Purpose, so that now the Vessel must be cool'd, and closely bung'd down; for if it should continue longer open in the same Warmth, the Spirit and Oil, now render'd more volatile, would fly off, and the Virtues requir'd be lost; so that the Matter should be now directly distill'd.
3. Take therefore as much of this Plant, and its fermented Liquor, as may fill Two-thirds of a Still, and work carefully from the first; for the Liquor, containing much fermenting Spirit, easily rarefies with the Fire, froths, swells, and hence becomes very subject to boil over. And as all this happens much quicker in this Distillation than in the foregoing Kinds, we ought here to work slower, especially at the first.
4. And thus there will come over first a limpid, unctuous, penetrating, odorous, sapid Liquor, all which is to be kept separate; there follows a milky, opaque, turbid Liquor, still containing something of the same Taste and Odour; and at length comes one that is thin, acid, not fragrant, and scarce having any Property of the Rosemary: There remains in the Still an Extract, indolent with respect to the Rosemary, and retaining much of the Substance of Honey. And all these Particulars hold, when the Fermentation is continued, till the Plant spontaneously falls to the Bottom of the Cask, which, with the above-mention'd Degree of Heat, usually happens in five or six Days.
5. This first Water, or rather Spirit, may be kept for several Years, in a close Vessel, without changing or growing ropy. It also excellently retains the Taste and Odour of the Plant, tho' a little alter'd; but if less Honey were added, less Heat employ'd, or the Fermentation continu'd only two or three Days; then the distill'd Water of the first Running would be white, thick, opaque, unctuous, frothy, and perfectly retain the Scent and Taste of the Plant, or much less alter'd than in the former Case; tho' the Water will not be so sharp and penetrating. After this is drawn off, a tartish, limpid, inodorous Liquor,

# AQU

will rise, leaving a Remainder behind, that retains much less of the Properties of Rosemary, than in the preceding Process.

6. There is also in this Case always found some Oil in the first Water, which was not in the former Spirit. Again, if the Fermentation were to continue only for a Day, or a Day and a half, the Water that first comes over would largely abound with Oil. In other respects Matters are nearly the same in both; for it is constantly found, that the longer the Fermentation was continu'd, the less Oil appears in the distill'd Water; and therefore what runs first, is always clearer and stronger; but upon mixing with common Water, the Whole immediately becomes milky: Whence these Waters greatly differ from one another, according as they are differently prepared in the above-mention'd respects. When the Fermentation is perfectly performed, the first Water will be limpid, the second milky; and if a third be forced over by a strong boiling Heat long continu'd, it will prove acid, thin, and limpid, resembling distill'd Vinegar. The Extract in this Case will always be the less impregnated with the Virtue of the Plant employ'd, the longer the Fermentation was continued, or the more perfectly it was performed; and *vice versa*. The Oil also, which in the Distillation of the unfermented Plants floated upon the Surface of the Water, becomes so attenuated, when the Plant is perfectly fermented before Distillation, as entirely to disappear, and lie concealed; or is subtly divided in the distill'd Liquor, which may therefore be call'd Spirit, rather than Water. That this is the Case, appears from hence, that if a large Quantity of Water be added to the Spirit, it presently grows white; which shews that there was Oil conceal'd in it: And frequently little Drops of Oil, thus regenerated, will float upon the Surface of the Water.

## REMARKS.

1. Hence we learn, that this Fermentation (when perfectly finish'd in the proper Time requir'd for that Purpose, with a large Proportion of Ferment, and if the whole fermented Matter be for some time contained closely bung'd down in a Cask) affords these Waters extremely limpid, hot, aromatic, odorous, sapid, and penetrating, without any Sign of their containing an Oil; and according as these Properties appear more in the Water, the native Virtues of the Plant are more changed; so that at last they can scarce be known: But when the Fermentation is perfect, each losing its proper Character, they all become nearly alike: Whence it is manifest, that the particular Virtues of Vegetables are not exalted or perfected by Fermentation, as they were in the preceding Process by repeated Cohobation; and that the Waters of the present Process, by such Cohobation, are not render'd so spirituous, as by a single Fermentation. And this seems to proceed from hence, that in the long continued and active Motion of Fermentation, the volatile presiding Spirit, now freed from the open'd Parts of the Plant, but principally from the attenuated Oil, exhales; for the Tenacity of the Oil was the chief thing that detained and locked the Spirit in the Plant. But a gentle and moderate Fermentation, which does not dissipate the Spirit, only dissolves the viscous Obstacles, admirably quickens these Waters, makes them durable, or long preserves them from Corruption, Dregginess and Ropiness; as is excellently observed by that skilful and candid Chymist, Daniel Ludovicus, in his Dispensatory accommodated to the present Age. And thus the Water of Carduus Benedictus, so prepared, is highly commended, where Sweating and Perspiration are required.
2. Hence the Taste and Smell of Plants, communicated to their distill'd Waters, principally depend upon their native Spirit respectively. But as this Spirit is wrapped up in a tenacious Oil, when this Oil is mixed with the Waters, it renders them the more odorous and sapid in the larger Quantity it is so mixed. This Oil is gradually thinned, made less tenacious, more spirituous, and easier to mix with Water, by Distillation, Digestion, and Cohobation in close Vessels; but thus the Spirit also becomes more volatile and disentangled, so as easily to fly off, unless it is every way very closely confined in the Vessels during the Distillation; which being performed, highly efficacious Waters may be thus prepared. But as Fermentation requires a Length of Time, the Admission of the Air, and open Vessels, it attenuates Oils by its Motion, so as to mix them with Water, and in this Form make an inflammable Liquor; which cannot happen without a Dissipation of the native Spirit. It however renders Oils miscible with the animal Juices, and fit to enter the finest Vessels; but always destroys the peculiar Virtue of the Plant. In the mean time, it proves the Medium of conveying stimulating and grateful Virtues to the Nerves, especially those of the Nose, Mouth, Jaws, Throat, Stomach, and Intestines.

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That nothing relating to the Distillation of Waters may be omitted, I shall add the Method of distilling *per Descensum*.

Chymists formerly called that Motion of Bodies Distillation, when, by the Assistance of Fire, the Subject to be changed, and contained in one Vessel, to which the Fire was apply'd, passes into another joined thereto, whether Solids were thus treated or Fluids; and this Operation with them differ'd in three respects: For, 1. The Fire raised the Matter perpendicularly upwards. 2. Somewhat obliquely, or laterally, as in Distillation by the Retort. And, 3. Downwards, the Fire being apply'd above; which last Species of Distillation they called *per Descensum*, which they used in the last Age for separating Quicksilver from its Ore, and which *Paracelsus* from thence transferred to Vegetables. Of this kind of Distillation we are now to give an Example.

Let there be procured a sufficiently wide and deep cylindrical Vessel, made of such Matter as will neither transmit, drink up, or foul Liquors. From the upper Rim of this Vessel cut an Inside Groove, fit to receive exactly, and sustain a round Plate struck full of Holes, which is to sink into the open Mouth of the Vessel, so far that the upper Surface of the Plate be two Inches from the Rim thereof; then place any recent, green, succulent Plant, first cut or bruised, upon the Plate, so that it may reach up to the Rim; then apply a flat Cover, which may exactly close the Mouth of the Vessel, with the Assistance of luting, to prevent any Vapours from exhaling. The whole Apparatus may be made of Iron-plate, if a large Quantity of Water is requir'd at once; otherwise, for a single Experiment, one of Earth may suffice. Let a little fine Ashes be sifted upon the Cover, and a few live Coals be placed thereon, that the moist Parts of the Plant may be resolved into Vapour, and its Juices be liquefied so as to fall into the wide Part of the Vessel below, where being condensed by the Cold, they will gradually distil and collect, if the Fire be prudently managed, and increased by Degrees. And thus the Spirit, Water, Wax, Gum, Oil, Rosin, as also the saline and saponaceous Matter of the Vegetable, which do not easily rise in the preceding Distillations, may be obtained: Care, however, must be had, not to make the Fire too large, for fear of quite burning up the Parts of the Subject; tho', indeed, a small Degree will have but little Effect; but if a violent Fire be used, all the Parts will be confounded together, the oily Matter burnt up, the Smell and Taste of the Produce become so empyreumatical, smoky, bitter, and nauseous, as to be scarce fit for internal Use, especially if the Subject were dry and unctuous. But when succulent Vegetables are employ'd, such as Rose-flowers, and prudently treated without burning, the Water so prepared will nearly resemble the natural Juices, as containing both their saponaceous Nature, and peculiar Virtues, though always a little changed by the Fire; whence the expressed Juices themselves are not only more agreeable, but more medicinal. *Paracelsus*, however, by treating Guaiacum in this manner, obtained an acid Liquor, and a sharp fetid Oil, which he recommends both for external and internal Uses; whence this Operation has been for some time practised in *Germany*, but is now almost disused, or changed for others more suitable. *Boerhaave's Chymistry*.

*Spirituus and Compound WATERS directed by the COLLEGE of PHYSICIANS.*

For preparing these, the Herbs are to be chosen green, unless particularly ordered to the contrary: In Defect of those which are green, about a fourth Part of the dry may be substituted, and so much Spring-water is to be allowed as will prevent their burning to the Still.

**AQUA ABSINTHII MINUS COMPOSITA:** Or, *The Lesser Composition of Wormwood Water.*

Take of the Leaves of dried Wormwood, two Pounds; of the Lesser Cardamom-seeds, two Ounces; of Coriander-seeds, half a Pound. Infuse them all in four Gallons of *French Brandy*, and draw off the same Quantity by Distillation.

After the same manner, but with an Omission of these Seeds, and, for that Reason, an Augmentation of four times the Quantity of Herbs, are made Waters from the whole Plants of Angelica, Baum, Mint, Sage, &c. the Flowers of Rosemary, Seeds of Caraway, Lesser Cardamoms, Anise, Juniper-berries, Orange, Citron, and Lemon-peel, &c.

This Water differs chiefly from that of the former Dispensatory, by substituting Cardamom and Coriander-seeds in room of the Aniseeds, which makes it more cordial and grateful to the Stomach; the Aniseeds yielding too foul an Oil to suit it for such Purposes. This Water is commonly used in Stomachic Infusions, on a Supposition, that it claims a Right to such Virtues from the Wormwood; but the Water rising from it partakes not of these Qualities which belong to it in Tincture;

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so that it seems only to be carminative from the Spice and Seeds now ordered in it. *Quincey*.

**AQUA ABSINTHII MAGIS COMPOSITA:** Or, *The greater Composition of Wormwood Water.*

Take of the Sea, and common Wormwood dried, each one Pound; of Sage, Mint, and Baum dried, each two Handfuls; of the Roots of Galangals, Ginger, Calamus Aromaticus, and Elecampane, of the Seeds of Sweet Fenil and Coriander, each three Drams; Cinnamon, Cloves, and Nutmegs, each two Drams; of the Lesser Cardamoms and Cubebs, each one Dram; cut and bruise the Ingredients as they require; and, after infusing them for some time in twelve Pints of *French Brandy*, draw off the same Quantity by Distillation.

This differs from that of the former Dispensatory, in rejecting Liquorice-root and Raisins, which can have no Effect in Distillation; and in allowing a greater Proportion of Spirit, and more to be drawn off; the former being too much loaded with the oily Ingredients, to admit either of its being fine to the Eye, or grateful to the Stomach. *Quincey's Disp.*

If we consider the Wormwood and Gentian Waters as Stomachics, little can be expected from them; because the Materials they are drawn from, are not suited to send any thing over by Distillation, that comes within this Intention; so that if there be any thing good in them, we are more beholden to the Spirit than the other Ingredients for it. *Quincey's Practic. Pharmaceut.*

The *Aqua Absinthii*, and *Angelicae magis Composita*, are sufficiently uniform in their Intentions, but have too many of the oily Seeds to allow them to come over fine, especially the latter; but neither of them is much prescribed or made. *Idem*.

**AQUA ANGELICÆ MAGIS COMPOSITA:** Or, *The greater Composition of Angelica Water.*

Take of Angelica-root, and the Leaves of Carduus, each six Ounces; of Baum and Sage, each four Ounces; of Angelica-seeds, six Ounces; and of Sweet Fenil-seeds, nine Ounces. Let the dried Herbs and Seeds be grossly bruised; and to them add of Cinnamon, two Drams; of Cloves and Mace, each one Dram and an half; of Nutmegs, and the Lesser Cardamom-seeds, each one Dram; of Cubebs, and Galangal-root, each one Dram and an half; of *Jamaica* Pepper and Saffron, each one Dram. Infuse them in two Gallons of *French Brandy*, and draw off as much by Distillation.

This hath rejected the *Species Diamoribi Dulcis*, and the *Aromaticum Rosatum*, which were in the former; one of these Compositions being wholly expunged in the present Dispensatory, and in their room are added Spices more conveniently answering the same Intentions. But in this, the Carduus avails nothing; and the Sweet Fennel-seeds are in too great a Quantity, which will make the Water foul and milky. The last Runnings of all the foregoing Waters are worth keeping separate for carminative Juleps, and such-like Intentions. *Quincey's Dispensat.*

**AQUA BRYONIÆ COMPOSITA:** Or, *Compound Bryony Water.*

Take of the Juice of Bryony-roots, four Pints; of the Juice of Rue and Mugwort, each two Pints; of the Leaves of Savine, three Handfuls; Motherwort, Catmint, and Pennyroyal, each two Handfuls; of Basil and Dittany, each one Handful and an half; of fresh outer Peel of Oranges, four Ounces; of Myrrh, two Ounces; of *Russia* Castor, one Ounce; Spirit of Wine, eight Pints. Distil as usual after proper Maceration; for the longer things of this Kind infuse together, the better is the Water.

This is much prescribed in Hysterical Cases, and is very forcing upon the Uterus, which makes it given to promote Delivery, and forward the proper Cleansings afterwards; as also to open Menstrual Obstructions, and abundance of Female Complaints. It is likewise good against Convulsions in Children, and of Service in any nervous Complaint in either Sex. Its Dose is from two Drams to two Ounces, with any convenient Diluter. *Quincey's Dispensat.*

The *Aqua Bryoniæ Composita* takes in some of the most efficacious of the fetid Simples, and seems admirably well contrived for the Intention of an Hysteric, so far as their Virtues are procurable this way; but they who would have it good, must expect it very foul and milky; for where it is otherwise, it hath been defrauded of its due Quantity of the best Ingredients, or their better Parts have been precipitated with Alum, or taken out by the Filtré. *Quincey's Practic. Pharmaceut.*

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**AQUA FLORUM CHAMÆMELI COMPOSITA:** Or, *Compound Chamomile-flower Water.*

Take of dried Chamomile-flowers; one Pound; of the outer Peel of Oranges, two Ounces; of the Leaves of common Wormwood and Pennyroyal, each two Handfuls; of the Seeds of Anise, Cumin and Sweet Fennel, of the Berries of Bay, and Juniper, each one Ounce; infuse them in one Gallon of *French Brandy*, and draw off double that Quantity by Distillation.

This Water is a Carminative, and in that Intention may be used at Discretion. *Quincy.*

**AQUA CINNAMOMI FORTIS:** Or, *Strong Cinnamon Water.*

Take one Pound of Cinnamon grossly powdered, and one Gallon of *French Brandy*; draw off by Distillation ten Pints.

**AQUA EPIDEMICA:** Or, *Plague Water.*

Take of the Leaves of Celandine, Rosemary, Rue, Sage, *Roman Wormwood*, Dragon, Agrimony, Baum, Scordium, the Lesser Centaury, Carduus, Betony, and Mint, each two Handfuls; of dried Angelica-root, Zedoary, and Gentian, each one Ounce; of the *Virginia Snake-root*, half an Ounce; let them be infused in one Gallon of *French Brandy*, and draw off ten Pints by Distillation.

This very much differs from that of the old Dispensatory; and, besides the Addition of many new Herbs, leaves out the Masterwort, Piony, and Butterbur-roots, inasmuch that the Intention of the Medicine seems changed from an Alexipharmic into a Cardiac. It is taken from *Shipton's* Additions to the former Dispensatory; and is not, by many, so much esteemed as the former Plague Water, several Ingredients of most Efficacy there being here neglected, and many in this either useless or foreign to the Intentions. *Quincy's Dispensat.*

**AQUA GENTIANÆ COMPOSITA:** Or, *Compound Gentian Water.*

Take Gentian sliced, one Pound and an half; of the Leaves and Flowers of the Lesser Centaury, each four Ounces; infuse them in six Pints of *French Brandy*, and distil about half that Quantity.

This Water is frequently prescribed as a Stomachic, and is commended for a Deterger, and is said to do Service in Dropsies, the Jaundice, and any Obstructions of the Viscera; and is given from two Drams to two or three Ounces at a Dose: But, in Truth, these Ingredients give so little that will rise in Vapour, that the Spirit comes over but with a very small Alteration; so that they who are fond of the Virtues as they stand recommended in those Ingredients, must look for them in the Extract, or never put them into the Still; and that is easily made by straining and evaporating the Residuum, and is much used in the Shops, chiefly with Stomachics and Deobstruents, when prescribed to be made in Pills. *Salmon*, in his Notes upon this Water, says, it is a Preservative in pestilential Seasons, excellent against the Rickets, helps Stitches in the Side, and provokes the Terms and After-birth; and, with equal Reason and Consistency, that wretched Scribbler might have said it cured Corns, broken Bones, and Apoplexies. *Quincy's Dispensat.*

**AQUA IMPERIALIS:** Or, *Imperial Water.*

Take of dried Citron Peels, of Nutmegs, Cloves, and Cinnamon, each two Ounces; Roots of Cyperus, *Florentine Orris*, and Calamus Aromaticus, each one Ounce; of Zedoary, Galangal, and Ginger, each half an Ounce; of the Tops of Lavender and Rosemary, each two Handfuls; of the Leaves of Bay, Marjoram, Baum, Mint, Sage, and Thyme, each one Handful; of the Flowers of white and red Roses, each half an Handful; Damask Rose-water, four Pints; of *French Brandy*, one Gallon; then distil off ten Pints.

This is a very good cephalic Water, and makes a very convenient Julep in any nervous Cases whatsoever; and though it is so much slighted in the present Practice, this may be said of it, which can be said of few besides in the Dispensatory, that all the Ingredients coincide in one Intention, and such as will part with their Virtues by Distillation. It may be given from two Drams to two Ounces in any convenient Vehicle; it is also a pleasant Cordial Dram alone, and very good upon any sudden Sickness of the Stomach. *Quincy's Dispensat.*

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**AQUA LACTIS ALEXITERIA:** Or, *Alexiterial Milk Water.* See ALEXITERIA.

**AQUA LIMACUM TENUIS:** Or, *A small Snail Water.*

Take of the Leaves of Baum, Mint, Harts-tongue, and Ground-ivy, of the Flowers of Archangel, Mallows, and Elder, each one Handful; of Snails washed, and the White of Eggs, each four Ounces; of Nutmegs, half an Ounce; and of Cow's Milk, one Gallon; distil according to Art, either in Balneo Mariæ, or in a Sand-heat.

If this be drawn with six Pints of Cow's Milk, and two Pints of Canary, it is styled *The stronger Snail Water.*

**AQUA MIRABILIS:** Or, *The wonderful Water.*

Take of Cloves, Galangals, Cubebs, Mace, the Lesser Cardamoms, Nutmegs and Ginger, each one Dram; Juice of the Greater Celandine, half a Pint; *French Brandy*, two Pints and an half; and draw off the same Quantity by Distillation.

This is a pleasant and good Cordial, and greatly breaks the Wind off the Stomach, and disperses Flatulencies. *Quincy's Dispensat.*

**AQUA NEPHRITICA:** Or, *A Water against the Stone.*

Take of the best Flowers of White-thorn, four Pounds; of Nutmegs bruised, three Ounces; infuse them together in a close Vessel with two Gallons of generous White-wine, and draw off by Distillation twelve Pints.

This was much prescribed by the late Dr. Radcliffe, but was not in the former Dispensatory.

**AQUA PÆONIÆ COMPOSITA:** Or, *Compound Piony Water.*

Take Lily of the Valley Flowers fresh gathered, one Pound; and infuse them in two Gallons and an half of *French Brandy*; and to the same put of Lime-flowers, half a Pound; of Piony, four Ounces; of the Male Piony-root, two Ounces and an half; white Dittany, and long Birthwort, of each half an Ounce; of Mistletoe of the Oak, and Rue, each two Handfuls; of Piony-seeds husk'd, ten Drams; and of the Seeds of Rue, three Drams and an half; of *Russia* Castor, Cubebs, and Mace, each two Drams; of Cinnamon, an Ounce and an half; of Rosemary-flowers, six Pugils; of Stœchas, and Lavender-flowers, each four Pugils; of Betony, Clove, and Cowslip-flowers, each eight Pugils; of the Juice of black-Cherries, four Pints; and from the Whole draw off by Distillation four Gallons.

The present College Dispensatory hath left out some of the insignificant Ingredients that were in the former, and particularly the Squills; and avoided also the Trouble of a double Distillation, which was altogether needless. This is the same as was originally inserted by the College in their first Dispensatory, under the Title of *Aqua Antiepileptica Langii*. The Quantities also of some of the Ingredients are blameable, as three Drams and an half of Seeds of Rue, when the Whole might be taken in Substance at one Dose, without any visible Effect. It has some Ingredients in it of little or no Efficacy to the main Purpose, and others entirely unfit for this Form; of the first are the Radix Dictamni Albi, and Aristolochiæ Longæ, neither of which will send any thing considerable over the Helm. The Semina Pæoniæ, and Viscus Quercinus likewise, howsoever agreeable they may be to this Intention in other Forms, will not send out any thing of that Kind by Distillation. The Seeds will make well enough into an Emulsion when husk'd, and the Mistletoe is best reduced into a Powder; but husking the Seeds to be distill'd, were they proper for it, is a Circumstance very trifling. The Castor is in this increased in its Quantity to what it was before; but although it may be the most considerable Ingredient in the Whole for the main Intention, yet the more it sends over the Helm, the more will it deform the Water with a Milkiness, and disagreeable Scent; and therefore 'tis much better contrived into other Forms, tho' in the Quantity it now stands here, it is too little to do much Harm in this respect; so that this Water, in the main, is pleasant enough, and now obtains in common Prescription beyond any of the same Rank. *Quincy's Pract. Pharmac.*

It is an excellent Cordial, and can be exceeded by nothing in all nervous Cases, both in Children and grown Persons. It may be diluted into a Julep with Black-cherry Water, or any such Vehicle, and may be given from one Dram to three, to Children, and from half an Ounce to two Ounces to grown Persons;



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Persons; and, if the Case requires it, may be repeated every six or eight Hours. But Cases of Moment are not trusted to such Helps as this alone. *Quincey's Dispensat.*

**AQUA PROTHERICACALIS:** Or, *A Succedaneum for the Treacle Water.*

Take of the Leaves of Scordium, Scabious, Carduus, and Goats-rue, each two Handfuls; of Citron-peel, and Orange-peel dried, each half an Ounce; Seeds of Citrons, Hartwort, and Treacle-mustard, each one Ounce; of the Flowers of Marigolds and Rosemary, each one Handful; Cinnamon, two Drams; of French Brandy, two Pints; and distil off six Pints.

The Carduus Seeds, and the Carduus Water, are in this omitted as insignificant, the rest continuing much as before. It is designed to be used as Treacle Water when that proves deficient, in a Season not fit to make it. *Quincey.*

**AQUA RAPHANI COMPOSITA:** Or, *Compound Horse-radish Water.*

Take of the Leaves of both Scurvy-grasses, fresh gathered in the Spring, each six Pounds; bruise them, and press out the Juice; and to it add the Juices of Brook-lime and Water-cresses, each one Pint and an half; of Horse-radish-root, two Pounds; of Arum-root, fresh, six Ounces; of Winter's-bark, and Nutmegs, each four Ounces; of Lemon-peels dried, two Ounces; of French Brandy, four Pints; and draw off by Distillation eight Pints.

In this is rejected the Briony-root, which is ordered in a large Quantity in the old College Dispensatory, but renders the Flavour of the Water nauseous, and gives no Virtues suitable to the main Intention of the Whole. The Arum-root is likewise in this increased in its Quantity, but half an Ounce, being ordered in the former, whereby the Medicine is rendered yet more pungent, and efficacious as an Antiscorbutic, or a Nephritic, both which Purposes 'tis calculated for. All the Ingredients in this Water, are of a subtle penetrating Nature, and greatly abound with volatile Salts, which, in many gross and fizy Constitutions of the Blood, do great Service by dividing it, and rendering it more fluid, which will increase the Discharges by the Kidneys, and likewise wash through any Obstructions in those Parts. In all Obstructions of the other *Viscera*, it is also an excellent Medicine, and prevails against the Jaundice, Cachexies, and Dropsies; and, in scorbutic Cases, there is nothing beyond it; as it greatly forces those minute Passages, promotes Transpiration, and cleanses the Skin, and other small Glands, which entertain gross Particles to the Detriment of their proper Offices. It may be given from half an Ounce to three or four Ounces, unless immediately after Distillation, because then it is so pungent as makes it difficult to take without much diluting. This Water ought to be drawn with the Receiver fixed close to the Worm by a Bladder, otherwise a great deal of the best Part will fly away. *Quincey's Dispensat.*

The *Aqua Raphani Composita* aims at the Intention of a Diuretic; and will, if good, be as foul and milky as the compound Bryony Water, when rightly prepared. *Quincey's Prælect. Pharmac.*

**AQUA DOCTORIS STEPHANI:** Or, *Doctor Stephen's Water.*

Take of Cinnamon, Ginger, Galangals, Cloves, Nutmegs, Grains of Paradise, of the Seeds of Anise, Sweet Fennel, and Caraway, each one Dram; of the Leaves of Thyme, Mother of Thyme, Mint, Sage, Pennyroyal, Rosemary, Flowers of red Roses, Chamomile, Origanum, and Lavender, each one Handful; of French Brandy, six Pints; and draw off one Gallon by Distillation.

All the Ingredients in this Water are well suited to the main Intention of a Cephalic, a Cordial, or Carminative; it is likewise somewhat Antihysterical, and therefore frequently used by the Midwives amongst their Women. It is much prescribed from two Drams to two Ounces.

**AQUA THERIACALIS:** Or, *Treacle Water.*

Take of the Juice of green Walnuts, four Pints; of the Juice of Rue, three Pints; of Carduus and Baum, each two Pints; of the fresh gather'd Butterbur-roots, one Pound and an half; of Burdock, one Pound; of Angelica, and Masterwort, each half a Pound; of green Scordium, four Handfuls; of old Venice Treacle, and Mithridate, each eight Ounces; of Lemon-juice, two Pints; of French Brandy, one Gallon and an half; draw off by Distillation three Gallons and an half, and then add four Pints of distill'd Vinegar.

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The new Dispensatory omits the needless Circumstance in the former, of depurating the Lemon-juice before Distillation, and very prudently adds the distill'd Vinegar afterwards, instead of putting it into the Still, because with such Management it effectually answers all its Intentions; and risks less Hazard of carrying along with the Medicine any Part of the Metal with which the Alembic is made, as all Acids are subject to do. This Water is the most used of any in the Shops, though its Composition be blamed by many; for the Juices can contribute very little to its Virtues; and upon account of the proper Season to obtain them, this Water cannot be made at all times, how much soever wanted; unless, as some do, the Juices are express'd in their Season, and kept on Purpose; but then they are good for nothing; for so little as is of a volatile Nature in these Simples, will very soon be lost. The rest of the Ingredients indeed agree very well to the main Intention of an Alexipharmic and Sudorific; and the Acids contribute much to that Purpose.

The Dose of this Water is usually to grown Persons from half an Ounce to one Ounce, which is too little; for four Ounces is but a moderate Quantity to have any Reliance upon, especially to Persons who are used to high living. *Quincey's Dispensat.*

It is of great Importance in Composition to adapt the Ingredients made use of to Forms in which their Medicinal Virtues may be procured and preserved. But nothing is more idle than to study the Elegance and Beauty of Medicines, because they are not calculated to please the Eye or Palate, but to cure Distempers. Besides, all our Endeavours to render Remedies palatable are fruitless, because the very Name of a Medicine, with most People, conveys an Idea of something nauseous.

As to the Form of Spirituous Waters, they do not seem in the least calculated for the Removal of any Distemper, though they may sometimes relieve Symptoms. If what has been said under the Article ALCOHOL, with respect to Spirits procured by Fermentation, be duly considered, perhaps others will, like me, think, that spirituous Waters can seldom be taken in Quantities sufficient to do any considerable Service by the Ingredients wherewith they are impregnated, without doing a Mischief more than equivalent by their noxious Spirit.

In several of the Compound Waters mentioned above, much more is directed to be drawn off, than is put of the Spirit to the Ingredients. In these Cases therefore, the Compounder must take care to put into the Still Water sufficient to admit of the Quantities directed to be drawn off.

Because there are many of the foreign Writers in Physic, who make mention of the *Aqua Anhaltina*, and of the *Aqua Sclopetaria*, which last is usually known by the Name of *Eau d'Arquebuse*, I shall in this Place specify the Manner of their Preparation. And to these I shall add a Snail Water, somewhat different from that of the College, on account of its singular Excellence.

**AQUA ANHALTINA.**

Take of the best Turpentine, half a Pound; of Olibanum, one Ounce; Wood of Aloes reduced to Powder, three Drams; Grains of Mastich, Clove-gilly-flowers, or Rosemary-flowers, Nutmegs, Cubebs, or Galangals, Cinnamon, each six Drams; Saffron two Drams and an half; Fennel-seeds, and Bay-berries, each half a Dram. Reduce all to a Powder, and digest in five Pounds of Spirit of Wine for six Days, adding fifteen Grains of Musk tied up in a little Bag. Then distil in a slow *Balneum Mariæ*; separate what is clear from what is turbid.

N. B. 'Tis better to put the Musk in the Beak of the Alembic.

This Water warms, dries, dissolves, strengthens the Heart, Stomach, and other Viscera; for this Reason it is thought good in Faintings and Deliquiums. But it is more frequently used externally, and said to be of great Service in Catarrhs, and Pains arising from a cold Cause, in the Wandering Gout, as 'tis call'd, in Palsies, Epilepsies, Apoplexies, Vertigos, Tremors, and Lethargies, by rubbing the affected Part well with it. *Schroderi Pharmacopœia Medico-chymica.*

**AQUA SCLOPETARIA, sive VULNERARIA:** *The Vulnery Water,* commonly call'd *Eau d'Arquebuse.*

Take of the Leaves and Roots of Comfrey, of the Leaves of Sage, of Mugwort, and of Bugle, each four Handfuls; of the Leaves of Betony, Sanicle, Ox-eye, of Daisy, of the greater Pigwort, of Plantain, of Agrimony, Vervain, Wormwood, and Fennel, each two Handfuls; of St. John's-wort, of long Birthwort, of Orpine, of Paul's Betony, of the lesser Centaury, of Yarrow, of Tobacco, of Mouse-ear, of Mint, and of Hyssop, each one Handful; Cut all these, and bruise them sufficiently in a Mortar;

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tar, then put them into a large Earthen Vessel, and pour twenty Pounds of White-wine upon them. Stir the Whole with a Stick, stop the Vessel, and allow it to digest in a warm Dung-hill, or any other such Heat, for the Space of three Days. Then pour it over into a large Copper Cucurbit, whose Inside is covered with Tin; and, having adapted its Head and Refrigeratory to it, draw off the Moisture into a Receiver, by a moderate Fire, in the ordinary manner. Thus you will have the Vulnerary Water, or *Eau d'Arquebuse*, which must be preserved in a close-stopt Bottle.

It is good for Contusions, and Dislocations, and very proper for discussing Tumors; apply'd externally, it deterges Wounds, and old Ulcers. It incarns, corroborates, resists Putrefaction, Stops Gangrenes, and is by some used against Vapours.

That the Nature, the Uses, and Virtues of this Water may be the better understood, I shall subjoin a short Account of the Qualities of each of its Ingredients.

As for the Water itself, its very Names are expressive of its Virtues; for the Word *Vulnerary* imports its being proper for curing Wounds. And the French Word *Arquebuse* implies its being particularly proper in Gun-shot Wounds.

1. COMFREY then, or the *greater Consouid*, is glutinous, and proper to consolidate the Lips of Wounds; hence it receives its Latin Name CONSOLIDA. It stops Hæmorrhages and Fluxes, and contains little Salt, but a great deal of Oil and Phlegm.

2. SAGE is, by way of Eminence, called *Salvia*, because in a great many Disorders it is thought to save and preserve Life. Of this Herb there are two Species, the Wild and Garden Sage; of this latter Species there are two Kinds, the large and the small. The small Kind is the best, and must be used in preparing the Vulnerary Water. It contains a great deal of Salt; and an Oil exalted into a Spirit. It has few passive Principles, and is cephalic, nervous, antihysterical, stomachic, and aperient.

3. MUGWORT contains a great deal of Salt, little Oil, and Phlegm; and is antihysterical, aperient, and vulnerary.

4. BEET-ROOT, or *Middle Consouid*, contains a considerable Quantity of Salt and Oil, and a great many passive Principles. It is vulnerary, corroborative, and proper in Disorders of the Lungs.

5. BETONY contains an exalted Oil, and an essential or volatile Salt, but little fixed Salt, Phlegm, and Earth; and is cephalic, cordial, and vulnerary.

6. SANICLE contains a considerable Quantity of Salt and Oil, a great deal of Phlegm, and little Earth. It is astringent, consolidating, vulnerary, proper in *Herniæ*, used both internally and externally.

7. OX-EYE contains a great deal of Oil and Phlegm, and a considerable Quantity of Salt. It is vulnerary, and prescribed for the *King's-evil*.

8. THE SMALLER DAISY, or *Bellis Minor*, contains little Salt and Earth, but a great deal of Oil and Phlegm. It is used for stopping Hæmorrhages, consolidating Wounds, discussing Tumors, and carrying off Inflammations of the Eyes.

9. *Scrophularia Alajr*, or the GREATER FIGWORT, contains a great deal of Salt and Oil, a considerable Quantity of Phlegm and Earth, and is apply'd for discussing scrophulous Tumors, which its Root resembles. It is also used to soften Hardnesses, to deterge Wounds, and old Ulcers.

10. PLANTAIN contains an Oil, a little Salt, but a great deal of Earth and Phlegm. Its Salt, which is acid, being mixed with its Oil, and with a great many passive Principles, is almost entirely absorb'd by them; for this Reason the Plant is only slightly deterfive, but it is astringent and refreshing, on account of its Earth and Phlegm. It is used in Fluxes of all Sorts, in Hemorrhages, and Inflammations of the Eyes.

11. AGRIMONY, or *Eupatorium*, contains a considerable Quantity of Salt and Oil. Its active Principles are mixed with a great deal of Earth, and a little Phlegm; for which Reason it is deterfive and astringent with regard to the Fæces, but aperient with regard to the Urine. It is thought good for Disorders of the Liver, and stops Fluxes.

12. VERVAIN contains a considerable Quantity of Salt and Oil, and is cephalic, vulnerary, or desiccative. It is used for Disorders of the Breast, for the Stone and Dysentery, for generating Milk in Nurses, and for the Pleurisy. It is both administered internally, and apply'd externally.

13. *Abies*, or WORMWOOD, contains a sulphureous Spirit, or rather an exalted Oil, in which its Smell consists. It has also great Store of Salt, but little Phlegm. It kills Worms, and corroborates the Stomach. It is vulnerary, aperient, and antihysterical.

14. *Feniculum*, or FENNEL, contains a great deal of Salt, and Oil half exalted to what we call Spirit; it also contains a considerable Quantity of Earth and Phlegm. Its Seeds, the largest and best nourish'd, come from *Florence*, are very much used in Medicine; they dispel Wind, and are antihysterical.

Its Root is aperient; and its Leaves are proper for deterging that Sanies which sometimes infects the Eyes, and accompanies Wounds.

15. The *Hypericum*, or ST. JOHN'S-WORT, contains a pretty large Quantity of Oil, Salt, and Earth, but little Phlegm. It is vulnerary, anti-hysterical, aperient, and nervous.

16. BIRTHWORT is called *Aristolochia*, on account of its being proper for bringing away the After-birth. There are four Species of it, the *round*, the *long*, the *small*, and that call'd the *Aristolochia Clematitis*; all of them contain a great deal of Oil and Salt, a considerable Quantity of Phlegm, but little Earth. They are vulnerary, deterfive, antihysterical, and proper to resist Gangrenes, attenuate Phlegm, and assist Respiration. The two first are apply'd externally; and the Roots of the two last are used in such Medicines as are design'd for internal Use.

17. *Telephium*, or ORPIN, contains a great deal of Phlegm and Oil, but little Salt and Earth. It is vulnerary, astringent, moistening, and consolidating. It is also proper for *Herniæ*, Dysenteries, and deterging and wearing off Blemishes in the Skin.

18. *Veronica*, or PAUL'S BETONY, is of two Sorts, the Male and the Female: The Male is of two Sorts, one strait, and the other crooked, and creeping on the Ground. This last is most in Use, and must be made Choice of in preparing the vulnerary Water. All the Species of this Plant contain a great deal of Salt and Oil, and are of an inciding, attenuating, deterfive, vulnerary, and sudorific Quality; they are also proper for Ulcers of the Breast and Lungs, and for resisting Poison.

19. The *Centaurium Minus*, or LESSER CENTAURY, contains a great deal of Salt, a considerable Quantity of Oil and Earth, but little Phlegm. It is vulnerary, deterfive, drying, and aperient. It is proper for Scurvies, intermittent Fevers, Worms, Madness, Obstruction of the Menfes, the Sciatica and Jaundice.

20. The *Millefolium*, or YARROW, contains a great deal of Salt and Oil, and is astringent, vulnerary, discutient, and proper to stop Fluxes, Hæmorrhages, and Gonorrhæas.

21. *Nicotiana*, or TOBACCO, is universally known to be narcotic and vulnerary. It is customary to bruise it, and apply it to Tumors, in order to discuss them, because it contains Spirits which attenuate the Matter, and open the Pores. It is also customary to infuse it in common Water for washing Tetters, and other Deformities of the Skin; but if the Water is too richly impregnated with it, it is subject to excite Vomiting. There is also a Syrup of it prepared for the Asthma. Decoctions of it are sometimes used by way of Clysters in Apoplexies, Lethargies, and uterine Suffocations. It contains a Sulphur, and a volatile Salt, so penetrating, that it is scarce sooner in the Stomach, than it stimulates its Fibres, and excites Vomiting. Its Oil is so strong an Emetic, that if a Person but holds his Nose a little above the Phial in which it is contain'd, he vomits. I myself once made a small Incision in the Skin of a Dog's Thigh; and upon putting a small Tent in it, which had been dipt in the Oil of Tobacco, the Animal was violently purged, and vomited almost immediately after.

22. The *Pilosella*, or MOUSE-EAR, contains a considerable Quantity of essential Salt and Oil, little Phlegm, but a great deal of Earth. It is astringent, vulnerary, incrassating, proper for *Herniæ*, and for stopping Hæmorrhages, Dysenteries, and other Fluxes.

23. *Alentha*, or MINT, is either wild, or grows in Gardens. Both Sorts contain a great deal of exalted Oil, and volatile Salt, and but little Phlegm and Earth. Both Species corroborate the Stomach, assist Digestion, dispel Wind, cure the Colic, attenuate and dissolve Humours, and resist Gangrenes.

24. *Hyssopus*, or HYSSOP, contains a great deal of volatile Salt, and exalted Oil, and but little Phlegm and Earth. It is vulnerary, deterfive, and aperient. It is used in Disorders of the Breast and Lungs, such as the Asthma and Phthisis.

As the Vulnerary Water, or *Eau d'Arquebuse*, has so high Encomiums passed upon it by some foreign Physicians, and is at the same time so little known or heard of in our Country, I have abridg'd Mr. *Lemery's* Remarks upon each of its Ingredients; that, knowing the Nature and Quality of every *Simple* apart, we might be the better able to form a true Estimate of the Compound resulting from their Conjunction and Preparation in the manner directed.

As in this Process most of the Plants subjected to Distillation are none of the most succulent, it is proper to add White-wine to them, since that Liquor excites a Fermentation, and serves to disengage the saline, sulphureous, and volatile Parts of the Ingredients.

Care must be taken, that the Fire be not too strong during the Distillation, lest the Matter should adhere to the Bottom of the Cucurbit, and the Water drawn off acquire, of course, an empyreumatic Smell. After half the Liquor is distill'd, it is proper to pour what remains in the Cucurbit upon a Linen Cloth, and to put it into a Press, in order to extract its Juice; after which it is to be return'd into the Cucurbit, and again subjected



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subjected to Distillation. By this means the empyreumatic Smell of the Water may be prevented: But a *Balneum Vaporosum*, or a sufficiently large *Balneum Mariæ*, are still more to be trusted to in this Process.

If we dry and burn the gross Remains of these Herbs, make a Lixivium of their Ashes, draw the Salt from this Lixivium by Evaporation, and dissolve it in the distill'd Water, it will by that means become more deterfive and discutient, than it would otherwise have been. *Lemery. Cours. de Chymie.*

## AQUA LIMACUM.

*A Snail Water different from that of the Dispensatory.*

Take a great Peck of Garden-snails, and wash them in a great deal of Beer, and make your Chimney very clean, and set a Bushel of Charcoal on Fire; and when they are thoroughly kindled, make a Hole in the Middle of the Fire, and put the Snails in, and scatter more Fire amongst them, and let them roast till they make a Noise; then take them out, and, with a Knife and coarse Cloth, pick and wipe away all the green Froth: Then break them, Shells and all, in a Stone Mortar.

Take also a Quart of Earth-worms, and scour them with Salt divers times over. Then take two Handfuls of Angelica, and lay them in the Bottom of the Still; next lay two Handfuls of Celandine; next a Quart of Rosemary-flowers; then two Handfuls of Bears-foot and Agrimony; then Menugreek; then Turmeric; of each one Ounce: Red Dock-root, Bark of Barberry-trees, Wood-forrel, Betony, of each two Handfuls. Then lay the Snails and Worms on the Top of the Herbs; and then two Handfuls of Goose-dung, and two Handfuls of Sheep-dung. Then put in three Gallons of strong Ale, and place the Pot where you mean to set Fire under it: Let it stand all Night, or longer; in the Morning put in three Ounces of Cloves well beaten, and a small Quantity of Saffron, dry'd to Powder; then six Ounces of Shavings of Hartshorn, which must be uppermost. Fix on the Head and Refrigeratory, and distil according to Art.

This Water is an excellent Restorative, very good when the Gout raises Flatulencies in the Stomach, and is said to be effectual in even obstinate Jaundices.

*Medicated Waters from the College.*

## *Aqua Aluminosa*: ALUM WATER.

Take of red Rose and Plantain Water, each one Pint; of white Sublimate and Roch-alum, each two Drams: Let the Alum and Sublimate be rubb'd together, and be both boil'd with the Waters, in a Glass Vessel, having a narrow Neck, to the Consumption of half the Quantity; and after five Days, when the Fæces are settled, pour off the Clear for Use.

This is chiefly for external Uses, and most commonly comes under the Direction of a Surgeon, in Ulcers and cutaneous Eruptions. The Steam of the Alum-water, when boiling, is carefully to be avoided by the Operator, because it may have bad Effects from its poisonous Qualities. It was first prescrib'd by *Fallopious, Cap. 93. de Morbo Gallico.*

## AQUA CALCIS: Lime-Water.

Take one Pound of Quick-lime, and pour upon it twelve Pints of boiling Water: After the Ebullition ceases, and the Lime is settled to the Bottom, pour off the Clear for Use.

This is kept in Readiness for various Uses, both internal and external.

## AQUA CAMPHORATA STYPTICA: Camphorated Styptic-Water.

Take of camphorated Vitriol, one Ounce; steep it in three Pints of Spring-water, and let it stand till the Fæces are fallen to the Bottom.

## AQUA SAPPHIRINA: Sapphire-colour'd Water.

Take one Pint of Lime-water, of Sal Ammoniac one Dram and an half: Let them be dissolved together, and then stand in a Brass Basin till the Liquor becomes tinged of a Sapphire Colour.

This, by some, is greatly esteem'd for clearing the Eyes from Specks and Films, if two or three Drops be frequently instill'd into them

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## AQUA-FORTIS SIMPLEX: Single Aqua-fortis.

Take crude Vitriol, three Pounds; Nitre, two Pounds; beat and mix them well: Put the Mixture into an earthen Pot, call'd a long Neck; place it upon a Fire; fit it to a Receiver, which lute well with Clay, Sand, and cut Flax, wrought together: Give a Fire of the first Degree for three Hours; in that time there will come some red Fumes into the Receiver, which will again disappear; then raise the Fire to the second Degree, where keep it three Hours longer: Go on to the third and fourth, where keep it till the Receiver is free from Fumes. When all is cold, take the Receiver off carefully, and keep the Aqua-fortis for Use.

## AQUA-FORTIS DUPLEX: Double Aqua-fortis.

Take Vitriol, calcin'd almost to a Redness, four Pounds; of Nitre two Pounds, both made into fine Powder, and well mix'd: Put the Mixture into an earthen long Neck, or Glass Retort luted; set it in a reverberatory Furnace; fit and lute on a Receiver to it: Kindle a Fire, and proceed exactly as in the Aqua-fortis Simplex.

## AQUA REGIA.

Take equal Quantities of Nitre and Sal Ammoniac, and put them into a Retort, big enough to remain above two Thirds empty; place it in Sand, and raise under it a Fire of the second Degree, which keep up while any thing continues to come over.

## Another AQUA REGIA.

Take of Sal Ammoniac four Ounces; put it in Powder into a Matrafs, or Glass Vessel of a good Bigness, and pour upon it sixteen Ounces of Spirit of Nitre: Place the Vessel in a warm Sand-digestion, till all the Sal Ammoniac is dissolved; then pour it into a Bottle, and keep it stopp'd with Wax, or a Glass Stopple.

This is honour'd with the Appellation of *Aqua Regia*, because it will dissolve Gold, the Chymists *King of Metals*; but it is of no other Use in Medicine, than as a Menstruum in some Preparations.

There are many more Prescriptions for *Aqua Regia* in Chymical Writers, all which consist of an Union of Spirit of Nitre with Spirit of Sea-salt.

AQUÆDUCTUS, ὑδραγωγός, properly signifies a Pipe or Canal to convey Water; but is metaphorically applied to a Sort of bony Canal in the *Os Petrosum*, which is otherwise call'd the *Meatus Cæcus*, *Cochlearis*, and *Capreolaris*.

AQUALA. Arsenic, or Sulphur. *Johnson.*

AQUALICULUS, πτερόν, πτερόν, properly signifies that Part of the Belly which reaches from the Navel to the Pubes. It sometimes is used to express the Stomach, or intestinal Tube.

AQUARIUS. Iron. *Rulandus. Johnson.*

AQUASTER, in *Paracelsus, Lib. 1. de Vita longa, C. 3.* is a sort of Vision, which represents something to our Sight which has no real Existence, but only in Appearance.

AQUATUM, AQUEUM, ὑδαρής, from ὕδωρ, Water. Watry, diluted. In *Scribonius Largus, N° 42. 26.* we meet with *Aquatior* and *Aquatissimus*. It signifies also the *Chalaza* of an Egg.

AQUEUS HUMOR OCULI. The aqueous Humour of the Eye. See OCULUS.

AQUIDUCUS, ὑδραγωγός. The same as HYDRAGOGON, which see. The Term AQUIDUCUS is found in *Cælius Aurelianus, De Tract. Passion. Lib. 3. Cap. 3.*

AQUIFOLIUM. The same as AGRI-FOLIUM, which see.

AQUILA, Offic. Mer. Pin. 170. *Aquila fulva sive aurea*, Will. Ornith. 26. *Rati Ornith.* 58. *Ejusd. Synop. A. 6.* *Chryseotos*, Aldrov. Ornith. 1. 110. *Charlt. Exer. 70.* *Jonst. de Avib. 2.* *Aquila Germana*, Gesn. de Avib. 149. *Aquila Regalis*, Schw. A. 214. *Aigle Royal*, Bellon. des Oyse, 89. THE GOLDEN EAGLE.

The Gall and Dung are the Parts used in Medicine: The Gall, distill'd with Oil of Violets, is recommended by *Avicenna* for Pains and Ringings in the Ears; and the Dung against Abortions. *Dale.*

AQUILÆ, ἀἰσῆ, are Veins so call'd first by *Philistius*, which ascend through the Temples into the Head, according to *Ruffus Ephesus.*

*Aquila* bears various Significations in Chymistry; it is the Spirit of Mercury; and Sal Ammoniac passes under that Name, because of its Levity in Sublimation; and *Paracelsus* would have *Aquila* often taken for *Mercurius Precipitatus*. It also signifies Arsenic, Sulphur, the Philosopher's Stone, &c. *Rulandus. Johnson.*

*Aquila Philosophorum* is the *Mercurius Metallorum*, reduced into its first Matter. *Rulandus.*

*Aquila*



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*Aquila Alba* is *Mercurius Dulcis*; also the Substance which is prepar'd of Sal Armoniac and common Sublimate: Moreover, it is that spiritual and crystalline Sublimate, in the Composition of the Philosopher's Stone, whose Glue is the true Mercurial Water.

*Aquila Lacrymæ* is the Liquor prepar'd from the said Salt, sometimes in its fix'd, sometimes in its volatile State.

*Aquila Cælestis* is the Panacea, or Cure for all Diseases, prepar'd of Mercury essentialized.

*Aquila Nigra* is the Spirit of that venomous Cadmia call'd *Cobalt*, which some take to be the Matter of the Philosopher's Mercury.

*Aquila Veneris* consists of Crocus, made of Verdegrise in a Reverberatory, and join'd with Sal Ammoniac, seven times sublimated.

*Aquila* has many other Epithets bestow'd on it by these sort of Authors, as *Rubra*, *Salutifera*, *Vitriolata*, *Expansa*, *Fixa*, *Humatica*, *Præcipitata*, *Volans*, &c.

**AQUILEGIA**, Offic. *Aquilegia cærulea*, Ger. 935. Emac. 1093. Mer. Pin. 9. *Aquilegia sylvestris*, C. B. Pin. 144. Tourn. Inst. 428. Elem. Bot. 340. Dill. Cat. Giff. 82. Rupp. Flor. Jen. 131. *Aquilegia sylvestris flore simplici*, Buxb. 25. *Aquilegia flore simplici*, J. B. 3. 484. Raii Hist. 1. 706. Synop. 3. 273. *Aquilegia*, Chab. *Aquilegia vulgaris flore simplici*, Park. Theat. 1. 100. *Aquilegia flore cærulea*, Merc. Bot. 2. 16. Phyt. Brit. 9. **COLUMBINES**. *Dale*.

The Root of this Plant is pretty thick, at the Head sending forth many long and large Fibres, which run pretty deep into the Earth. The Leaves grow upon long Foot-stalks, compos'd of a three-fold Division of as many roundish Segments, cut in, and indented about the Edges, of a bluish-green Colour: The Stalks rise to be a Foot and a half or two Foot high, somewhat hairy, slender, and of a purplish Colour, pretty much branch'd, and having several smaller Leaves set on, without Foot-stalks at each Division of the Branches. The Flowers are pendulous, of a fine blue Colour, each consisting of five plain, and five horned and hooded *Petala*, or Leaves, placed alternately, the Ends of the horned ones being crooked. When the Flowers are fallen, they are succeeded each by four or five longish taper Horns or Pods, set round about the Stalk, containing black shining Seed. Columbines grow wild in several Parts of *England*; but are not very common, and flower in *May* and *June*.

This Herb is also call'd *Leonis Officulum*; but receives the Name of *Aquilegia*, because its Leaves, not as yet fully expanded, collect and gather a great deal of Rain-water. This Herb may also justly be call'd *Theriaca*, on account of its remarkable Efficacy in curing malignant and virulent Disorders. It is well known in Flower-gardens, on account of its Flower, which resembles King's Cornflower, and lasts throughout the whole Summer. When its Leaves first begin to appear, it resembles the greater Celandine, and for this Reason it is also call'd *Celandonia Sylvestris*. Its Flowers are of different Colours, some blue, some purple, some white, and some of them are indented. The blue is only used in Apothecaries Shops, where the Seed, the Flower, and the Herb, are all employ'd. It is moderately drying, opening, and healing. It purifies the Blood, and removes Obstructions of the Liver and Spleen. It dissipates the Bile, and is of singular Efficacy in curing the Jaundice. A Powder or Emulsion of its Seeds, as also its distill'd Water, are of great Service in the Jaundice; in which Case its Extraet may also be used with great Success. *Hornung. Cist. Med. P. 6.* See also *Jo. Lang. Epist. Med. L. 3. C. 6. B. Tim. Epist. & Conf. Med. P. M. 461. Joh. Camerar. Hort. Med. P. 19. Jo. Johnston Syntagma, Med. Pract. L. 5. Tit. 6. C. 2. Artic. 6. Hieron. Braunschweig. Thesaur. Pauperum*. It removes the Scurvy; promotes a Discharge of Urine, and the monthly Evacuations of Women; cures a beginning Dropsy; is excellent for the Breast and Lungs; resists all kinds of Poisons; cures Wounds, and removes Pains of the Belly and Matrix. Mothers ordinarily use its Seeds for their Children, when they have the Measles or Small-pox, by tying them up in a Piece of Linen Cloth, and sleeping them among Beer. *Simon Pauli (Quadr. Botan. Class. 2.)* says, that he has given half a Dram of its Seed, with the Water of *Cardus Benedictus*, to poor Peoples Children in the Small-pox, and that by its means their Lives have been preserved. For this Purpose, People ordinarily make, of this Seed, Mustard-seed, Water-cresses, and Melons, an Emulsion, with Pumitory-water, Carduus-water, Viper-grass-water, that of Columbine-flowers and Fennel. It is used with Success in malignant Disorders, and even in the Plague. It is also by some extoll'd as a Specific in the Scurvy. *Joh. Michael. Not. in Schrod. Pharm. Clusius* recommends a Quarter of an Ounce of this Seed, reduced to a Powder, and taken in Wine, in difficult and tedious Labours. It is also an excellent Remedy against a Vertigo, (*Fr. Hoffman. Meth. Med. L. 1. C. 29. Paulin. Obs. Med. Phys. 95. Cent. 3. & Obs. 64. Cent. 4.*) and against the Sciatica and Epilepsy, taken in black Cherry-water. It is also commended in hysteric Disorders. The Seed, reduced to a Powder, may be given to collic Children. The Root,

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reduced to a Powder, and applied in Form of a Plaister to the Ears, removes Pains and Noises in them; and if there are Worms in them, kills them. *Camerar. in Hort.* says, that in *Spain*, in order to prevent a Stone in the Kidneys, People, when they rise out of Bed, take a Piece of the Root in their Mouths, and chew it by little and little. The Flowers have a cordial Quality, and may be taken as the other cordial Flowers. Many make cordial Syrups, Conserves, and Tinctures of them. They are also good in malignant Fevers, Small-pox, and Measles. Its Syrup is excellent in Disorders of the Throat, such as the Quinsy, and in those of the Breast. It is externally used in Scurvies of the Mouth, with the Addition of a little sweet Spirit of Salt. Some also make a *Vinegar* of its Flowers.

**AQUILENA**. The *Consolida Regalis*, or Lark-spur. *Johns.*

**AQUOSA URINA**, is crude watry Urine.

**AQUOSUS HYDROPS**. See **ASCITES**.

**AQUULA**. See **HYDATIS**.

**ARA PARVA**, *βαμὸς μικρός*. A little Altar. A neat way of Filleting and Bandage, which, when fix'd, represents the Corners of an Altar: It was invented by *Softratus*, and mention'd by *Galen de Fasciis*.

**ARABE**, *αἰσβή*, in *Hippocrates*, is expounded by *Erotian* ἡ βλάβη, Hurt or Injury.

**ARABICUS LAPIS**. The *Arabian Stone*. It is like Ivory, blemish'd with Spots.

Being levigated, and applied in a Cataplasm, it dries up the Hemorrhoids; and, when it is calcin'd, is used as a Dentifrice. *Dioscorides, Lib. 5. Cap. 149.*

The *Lapis Arabicus* is like Ivory, drying, and astringent. *Oribasius, Med. Coll. Lib. 15. P. Aeginet. Lib. 7.*

**ARABIS MALAGMA**, *ad Strumas & Phymata*. The *Arabian's Malagma* for stumous Swellings, and Tubercles call'd *Phymata*.

Take of Myrrh, Sal Ammoniac, Frankincense, liquid and dry Rosin, Crocomagma, Wax, each one Dram two Grains and an half; of the Stone call'd *Pyrites*, four Drams ten Grains; to which some add of Sulphur two Drams five Grains. *Celsus, Lib. 5. Cap. 18.*

**ARABICA ANTIDOTUS, Hepatica**. The *Arabian Antidote* for the Liver.

Take of Myrrh, four Drams ten Grains; Costus, one Dram two Grains and an half; white Pepper, *Indian Leaf*, each four Drams ten Grains; bruise them, and sift them, and give them in Mulfum: With this Antidote a Decoction of Abrotanum, in Water, should be drank; or some dry'd Figs, with their Weight in Honey, be eaten. *Myrepsus, Sect. 1. Cap. 265.*

**ARABICUM GUMMI**. *Gum Arabic*. See **ACACIA** and **GUMMI**. It may be proper to observe here, that the antient Physicians, by *κρόμμυ*, "Gum," put indefinitely, that is, alone, without any Word to restrain its Signification, mean *Gum Arabic*.

**ARABIS**. The same as **DRABA**, which see.

**ARACA GUAM**. A Species of the Goavo-tree, according to *Piso*. See **GUAYAVA**. *Raii Hist. Plant.*

**ARACA MIRI**. *Pison. Marcgrav.* A Shrub growing plentifully in *Brazil*, and bearing ripe Fruit in *March* and *September*, which has the sweetish Taste of Musk, and somewhat of the Savour of Strawberries: This, when candy'd and preserv'd, is a pleasant Cooler, Astringent, and Strengtheners, and supplies the Place of Marmalade of Quinces, Conserve of Roses, and the like.

Of the Leaves and Buds they prepare a very good Bath for internal as well as external Affections of the Body; for they are astringent; but especially the Root, which also cures the Dysentery, and is peculiarly diuretic, and of fine Parts. *Raii Hist. Plant.*

**ARACHYDNA** aut **ARACOIDES**, *Honorii Belli, J. B. Viciae similis supra infraque Terram Fruetum ferens, C. B. An Theophrasti Araco ὄμοιον, Clus. Arachidna Cretica, Park.*

This is one of the four leguminous Plants, mention'd by *Ray*, that bear Fruit as well above as under Ground. The other three are,

*Arachis sub Terra Siliquisera Lusitanica, Park.*

*Arachis, ὑπὸ γῆς, Americana, Park. Mundubi Brasiliensibus, Marcgr.*

*Legumen Trifolium sub Terra Fruetum edens. Mundubi de Angola, Marcgr.*

Besides these, there is describ'd in the *Memoires de l'Acad. Roy.* for 1723. another Species under the Title of

**ARACHIDNOIDES AMERICANA**. Or, *Arachidna Quadrifolia villosa Flore lutea, Nov. Plant. Americ. Gen. Plum. 49. Pistache du Tertre, 2. 121. Manobi, Labat. 4. 59.*

All the Difference between this and the former *Arachidna* is, that this last-mention'd, as in the Synonyma, bears Cods under Ground, which hang to the Fibres of the Root.



ARACHNE, ἀράχνη, a Spider. The same as ARANEUS; which see.

ARACHNOIDES, ἀραχνοειδής, from ἀράχνη, a Spider; and εἶδος, a Form. The external Lamina of the Pia Mater has been, by some Anatomists, made a distinct Coat, and call'd *Membrana Arachnoides*. See PIA MATER.

The Tunic also of the Crystalline Humour of the Eye is call'd *Arachnoides*, or *Aranca*. Dr. Nicholls, and afterwards Albinus, found the Means of injecting the Vessels of this Coat, which run upon it like Rays from a Centre. But according to Celsus, Rufus Ephesus, and Galen, the Tunica *Arachnoides*, or *Aranca*, is that Coat which immediately invests the vitreous Humour. Celsus, Lib. 7. Cap. 7. says it was thus named by Herophilus.

ARACON, Brass. Johnson.

ARACUS, a Plant thus distinguish'd :

*Aracus*, *Vicia sylvestris*, Offic. *Aracus five Cracca major*, Park. Theat. 1070. Merc. Bot. 1. 20. Phyt. Brit. 10. Mer. Pin. 9. *Vicia sylvestris, five Cracca major*, Ger. Emac. 1227. Raii Hist. 1. 902. Synop. 3. 321. *Vicia semine rotundo nigro*, C. B. Pin. 345. *Vicia angustifolia*, Rivin. Irr. Tet. Dill. Cat. Giff. 107. Rupp. Flor. Jen. 211. *Vicia vulgaris, acutius folio, semine parvo nigro*, Tourn. Inst. 397. Boerh. Ind. A. 2. 43. *Vicia vulgaris sylvestris, semine parvo & nigro frugum*, J. B. 2. 312. *Vicia vulgaris sylvestris frugum : Semine parvo & nigro, Cracca quibusdam*, Chab. 146. *Vicia sylvestris, semine nigro & variegato, folio acutius*, Hist. Oxon. 2. 63. *Vicia segetum, Aracus, Cracca*, Mont. Ind. 55. STRANGLE-TARE, or WILD VETCH.

It grows in Hedges, on Banks, and among Corn. The Herb is in Use, and has the same Virtues with the other Species of the *Vicia*. Dale.

ARACYNAPPIL, *Malis Aurantiis parvis similis Fructus*, J. B. *Malo Aurantio parvis Fructibus similis*, C. B.

This Plant is only just mention'd by Ray, without any Specification of its Virtues or Uses.

ARADOS, ἀράδος, in Hippocrates, signifies that Perturbation which is excited in the Stomach by concocting Meats of different Qualities, Lib. de Rat. Viſt. in Morb. acut. καὶ ἔτε σύψιν ἔχον, ἔτε ἀράδον καὶ ὄν. "Which (Ptisan) has no Astringency, nor is subject to raise Commotions in the Stomach." Where Galen expounds τὸ μὴδὲ ἀράδον ἔχειν, by μὴδὲ μὴ ἐν τῷ πύλινθῳ ταράχην ἐμποιεῖν, "causing no Disturbance in Concoction." Ἀράδος also signifies any internal Perturbation caused by purging Medicines, vehement Exercises, or other Causes.

ARAEON, ἀραιόν, signifies thin, rare, slow, and is opposed to πυκνός, thick, close, frequent. Thus ἀραιὸν πνεῦμα, Lib. 1. Epid. is Breath rarely drawn, or with long Intervals of Time, as it is explain'd by Galen and Erotian. Ἀραιὰ σώματα are the rare, lax, and soft Parts of the Body, which are easily receptible of any heterogeneous Matter, such as the Humours, σπογγώδεια τε καὶ ἀραιὰ, the spongy and lax Parts of the Body, as the Lungs, Spleen, and Breast. Lib. περὶ ἀρχαίων ἰσχυρίων.

ARAEON (rare) is properly what contains large Pores, as Pycnum, πυκνόν, "dense," is what has small Pores; but by a Metaphor, Catathresis, or whatever you please to call it, they are used to signify lax and close. Thus we call the Air and Fire rare, and the Water and Earth dense, transferring the Appellations to the very Elements, which are united, consist of similar Parts by Nature, and are incapable of Pores. Galen. de San. Tuenda.

ARÆOSYNCRITOS, ἀραιόσυγκριτος, from ἀραιός, thin, and συγκρίνω, to constitute or frame. A Person of a thin Constitution of Body. Galen. de San. Tuend.

ARÆOTICA, ἀραιωτικά, from ἀραιόω, to rarefy. Things, or Medicines, which rarefy.

ARALDA. The Italian Name for the Fox-glove. See DIGITALIS.

ARALIA, Berry-bearing Angelica. The Characters are : The Flower consists of many Leaves, which expand in form of a Rose, and are naked, growing on the Top of the Ovary. These Flowers are succeeded by globular Fruit, soft and succulent, and full of oblong Seeds. Miller's Dictionary.

*Aralia* is altogether like the *Araliastrum*, as to the Structure and Situation of its Flower; but its Berry consists of five Seeds placed round an Axis; and its Leaves are branch'd almost like those of Angelica; and its Stalks (which in some Species are naked, and in others have Leaves set alternately) bear each several Umbels at the Top, in the Form of a Bunch of Grapes. The Species of *Aralia* are,

1. *Aralia caule aphylo, radice repente*, D. Sarrazin. *Christophoriana Virginiana, zarza radicebus furculosis & fungosis, Sarsaparilla nostratibus dicta*, Pluk. Almag. 98. Tab. 238. Fig. 5. *Zarsaparilla Virginienſibus nostratibus dicta, lobatis umbelliferæ foliis Americana*, Ejusd. Almag. 396.

2. *Aralia caule folioso lævi*, D. Sarrazin. *Aralia Canadensis*, Inst. Rei Herba. 300.

3. *Aralia caule folioso & hispido*, D. Sarrazin.

4. *Aralia arboreſcens spinosa*, D. Vaillant. *Angelica arbore-*

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*ſcens spinosa, seu Arbor Indica, fraxini folio, cortice spinoso*, Raii Hist. 2. 1798. *Christophoriana Arbor aculeata Virginienſis*, Pluk. Almag. 98. Tab. 20.

All the Species of these two Genera, except the last of each of them, are common in Canada. The Inhabitants of that Colony, and those of Virginia, call the first Species of *Aralia* by the Name of *Sarsaparilla*, because its Roots have almost the same Figure and Virtues. M. Sarrazin writes from thence; that he had a Patient who had been cured of an Anasarca, about two Years before, by the Use of a Drink made of these Roots; and assures us, that the Roots of the second Species, well boil'd, and apply'd by way of Cataplasm, are very excellent for the curing of old Ulcers; as also the Decoction of them, with which they bathe and syringe Wounds; and he does not at all doubt; but the Virtues of the third Species are the same with those of the second. Philosoph. Transact. Abridg. Vol. 5.

ARALIASTRUM is a Genus of Plants; whose Flower is complete, regular, polypetalous, and hermaphrodite, standing on the Ovary; which is crown'd by a Calyx cut into several Parts, and becomes a Berry, in which are, for the most part, two flat Seeds like a Semicircle, which, both together, represent a sort of Heart. The Stalk, which is single, ends in an Umbel, of which each Ray bears but one Flower. Above the middle of the Stalk come out several Pedicles, (as on that of the Anemone) on the Extremity of which grow several Leaves like Rays, or like an open Hand. The Species of this Genus are,

1. *Araliastrum quinquefolii folio, majus, Ninzin vocatum*, D. Sarrazin: Gin-feng, Des Lettres edifiantes & curieuses, tom. 10.

2. *Araliastrum quinquefolii folio, minus*, D. Sarrazin. *Plantula Marilandica, foliis in summo caule ternis, quorum unumquodque quinqueſariam dividitur, circa margines serratis*, No. 36: Raii Hist. 3. 658.

3. *Araliastrum fragariæ folio, minus*, D. Vaillant. *Nasturtium Marianum, Anemones sylvaticæ foliis, emcaphyllon, floribus exiguis*, Pluk. Mantiss. 135. Tab. 435. Fig. 7. Philosoph. Transact. Abridg. Vol. 5.

ARANEA, ἀράχνη. The same as ARANEUS, which see.

ARANEA TUNICA. The same as ARACHNOIDES; which see.

ARANEOSA URINA, ἀραχνιώδες ὕδωρ, in Coac. is Urine containing something like Spiders Webs, with a Fatness at the Top, which indicates a Colliquation. Celsus, Lib. 2. Cap. 8. calls it *Urinam quædam Araneis similia subsistentia ostendentem*: "Urine that shews something in it like Spiders Webs."

ARANEOSUS PULSUS, ἀραχνοειδής σφυγμός, a Spider-like Pulse, is, as Galen defines it, ὁ μικρὸς, ὁ πρὸ βραχέως ἀνεσσελευόμενος κινούμενός, "a small Pulse, that moves as if it were shaken by short Puffs of Air."

ARANEUS, Offic. Schrod. 5. 337. Mer. Pin. 203. *Araneus subflavus hirsutus, prælongis pedibus, domesticus*, List. Hist. 59. Raii Insect. 27. *Araneus telarius*, quibusdam. *Araneus domesticus*, Mouff. Theat. Insect. 182. Jons. de Insect. 92. THE SPIDER.

It is more common than welcome in Houses. Both the Spider and its Web are used in Medicine: The Spider is said to avert the Paroxysms of Fevers, if it be apply'd to the Pulse of the Wrist, or the Temples; but is peculiarly recommended against a Quartan, being inclosed in the Shell of a Hazle-nut. The Web astringes and conglutinates, and is therefore vulgarly, restrains Bleeding, and prevents an Inflammation.

ARANEUS NIGER, Offic. List. Hist. 77. Raii Hist. Insect. 33. THE BLACK SPIDER.

It is common in Woods, Thickets, and Pastures. Among the approved Remedies of Sir Matthew Lister, I find, that the distill'd Water of Black Spiders is an excellent Cure for Wounds, and that this was one of the choice Secrets of Sir Walker Raleigh. Lister, Hist. Dale.

The Spider which some call the Catcher, or Wolf, being beaten into a Plaister, then sew'd up in Linen, and apply'd to the Forehead or Temples, prevents the Returns of a Tertian. The Web, apply'd, stops Bleeding, and keeps superficial Ulcers from an Inflammation.

There is another Kind of Spider, which spins a white, fine, and thick Web. One of this Sort, wrapped in Leather, and hung about the Arm, will, it is said, avert the Fit of a Quartan. Boiled in Oil of Roses, and instilled into the Ears, it cures Pains in those Parts. Dioscorides, Lib. 2. Cap. 68.

Thus we find, that Spiders have in all Ages been celebrated for their febrifuge Virtues; and it is worthy of Remark, that a Spider is usually given to Monkeys, and is esteem'd a sovereign Remedy for the Disorders those Animals are principally subject to.

The Country-people have a Tradition, that a small Quantity of Spiders Web, given about an Hour before the Fit of an Ague, and repeated immediately before it, is effectual in curing that troublesome, and sometimes obdurate Distemper. This Remedy is not confin'd to our own Country; for I am well inform'd, that the Indians about North-Carolina have great Dependence on this Remedy for Agues, to which they



are much subject; and I am acquainted with a Gentleman long resident in those Parts, who assures me he was himself cur'd by it of that Distemper.

The following Case, which is literally true, will be some Evidence in favour of the Virtue of Spiders Webs in intermittent Disorders.

Some time in April 1742. I was desir'd, by Mr. *Crawley*, an Apothecary in *Berry-street*, to see one Mrs. *Radcliffe*, who liv'd in a Stable-yard at the lower End of *Duke-street*, near St. *James's Square*. Upon my first Visit I was inform'd, that the some time before came from *Nottinghamshire*, with an inveterate Ague upon her, which return'd every Night at eight o'Clock, and continu'd for about nine Hours, the greatest Part of which Time she was delirious; and, indeed, during the Intermission, she could not be said to be entirely free from the Fever. She was very big with Child, and told me, she had but a Fortnight to reckon, and that she had been subject to *Hysteric Disorders* all the Time of her Pregnancy.

She had, by the Advice of her Midwife, taken the Bark, without any good Effect.

As the Time of her Delivery was so near, I judg'd it would be of some Importance to remove the Fever before her Labour, for Reasons too obvious to require mentioning. I therefore directed such Evacuations as her Condition would permit, and put her into a short Course of neutral Salts, after which I directed the Bark, which was for some time repeated in various Forms, and with various Additions; but all to very little Purpose, for the Fever never cess'd for more than three Days, and during that time she was in a worse State of Health than even when her Fever return'd, being affected with an excessive Diarrhœa. In this State she continu'd for about six Weeks, having mislaken in her Reckoning about a Month; and on or about May 26. in the Evening, she was seiz'd with Labour-pains, and much about the same time with her Fever-fit, the Consequence of which was an excessive Delirium. A Man-midwife was call'd, who, not finding she was likely to be deliver'd soon, left her, after having order'd her a Bolus, with *Lapis Contrayerva*, and a Cordial Julap. In the Night she was deliver'd, but the Gentleman refus'd to attend her again, because he judg'd it impossible for her to recover, as I was informed. I was then again consulted, and was told there was an entire Suppression of the Lochia, and that the Fever-fit constantly returned at one o'Clock in the Day, and lasted nine Hours, never without a Delirium. Till June 3. or 4. I us'd all my Endeavours to remove the Fever, and restore the Lochia; which last I effected, but in a Degree scarcely worth Notice; but the Fever perpetually return'd at one o'Clock, and continu'd as usual, and had reduc'd her to an excessive Weakness.

In such a Situation I believe the Gentlemen of the Faculty will not think I did amiss, if, in pursuance of the Advice of *Celsus*, I chose to try a doubtful Remedy, rather than suffer the Patient to perish without using any Means for her Relief. Upon this Principle, on June 4. about Ten in the Morning, I order'd a Bolus, made of a Scruple of Cobweb, with some Syrup, to be given at Eleven o'Clock, and to be repeated before One. My Directions were punctually observ'd, and Mrs. *Radcliffe* miss'd her Fit that Day. At Night she slept well for seven Hours, which she had not done for some Weeks before. The next Day the Bolus was repeated: At Night she slept nine Hours, and has never since had any Return of her Fit, except once upon a Fright some Weeks after, when the same Remedy again cur'd her. I must not omit taking notice, that when the Fever was removed, the Lochia were very soon plentifully restored.

As the Cobweb had no sensible Operation, that I could learn, it is a Task too difficult for me to account in a mechanical way for the salutary Effects it produc'd; the Fact, however, appears worthy of Regard.

Among the lower Class of animal Beings called Insects, whose Bites or Stings are made venomous, is the Spider; which altho' in ours, or some colder Climates, they are less dreaded, yet even with us there are some (according to the Observation of the curious Dr. *Lifter*, and such are generally of the oedonocular Kind) whose Bites are pernicious, and not to be contemned; an Experiment of which was made by the renowned *Harvey*, as we may find by the following Passage.

“ Having, for Trial-sake, prick'd my Hand with a Needle,  
“ I after rubbed the Point of the same Needle with the Tooth  
“ of the Spider, and perforated the Skin therewith in another  
“ Part of my Hand, but could distinguish no Difference in  
“ the Sense of the Punctures: However, there was one remarkable enough in the Skin; for, in the envenom'd Puncture, the same was soon rais'd up into a Tubercle, looking  
“ red with Heat and Inflammations, rising up as it were to  
“ shake off the inflicted Evil.”

But the Spider, swallow'd and received into the Stomach, whether of Man or other Animals, is not always alike hurtful, of which *Mouffett*, in his Treatise of Insects, gives a singular Example, and which may be infer'd from their being so much coveted by small Birds, to whom they are the greatest Dainties, and which they pick up without Distinction. A farther Proof

of their being inoffensive, otherwise than by their Bites, we may take from their Webs, so much in Request among the Antients, and at this Day, by the common People, apply'd to recent Wounds, on account of the Flux of Blood, which are, according to *Celsus*, a noble Agglutinative for small Hurts: There are even some who hold the Humour flowing out of their Bodies, as a great Secret for these Purposes, so far are they from being thought hurtful by such.

A yet farther Proof of their being inoffensive is set down by *Mouffett*, which is, that Eggs of these Insects, being deposited on some Fruits or Herbs, are frequently (as may be made apparent) taken in, tho' unobserv'd, and well digested by the most tender Stomach.

Signior *Redi* takes Notice, that this Creature, altho' it prove poisonous when instilling its Juice into the Wound, yet may it not happen so at all times when taken into the Stomach; to confirm which, Dr. *Fairfax* alleges Examples of several Persons well known to him, (himself having been an Eye-witness to several of the Experiments) who have commonly swallow'd Spiders, even of the rankest Kind, without any more Harm than happens to Hens, Robin-red-breasts, and other Birds, who make them their daily Food.

*Swammerdam*, in his Description of this Creature, says, that those Parts which are called by some others its Teeth, he rather takes for two strong and spiked little Claws; or the pointed Parts of two little and less conspicuous Feet, rather than Teeth properly, not much differing in Structure from the Sting of the Scorpion, with which they prick the Part in like manner with it: And if so, saith he, there will be little other Difference than this, that the Spider carries its double *Unguiculi* or *Aculi* in the Fore-part of the Breast, whilst the Scorpion darts out his single one from the hinder Part of his Body. These *Unguiculi*, according to our Author, are made up of two little Joints or Claws, with which they not only catch their Prey, but transfix and wound the same, afterwards sucking up the Juices of their Captives. Dr. *Lifter* takes notice of those forked Claws, but says they proceed out of the Mouth itself of the Creature: *Grodart* says much the same; whilst Dr. *Mead* tells us, That the Spider which lives upon Flies, Wasps, and the like Insects, is provided with a hooked Forceps, placed just by the Mouth, very sharp and fine, with which he pierces the Flesh of those little Creatures caught in his Web, and at the same time insuseth a Juice into the Puncture, by which means the Animal being kill'd, he sucks out the Moisture from the Body, and leaves it a dry husky Carcase.

*Leeuwenhoek* would have the Poison discharged from the Claw itself, at the same time the Wound is inflicted, contrary to Dr. *Mead*, who upon repeated Trials affirms, That having fixed its Claws upon the Prey, he observ'd a short white *Proboscis* thrust out of the Mouth, which instilled a Liquor into the Wound.

*Jacobus Hoesnagel*, (taken notice of, as I remember, by *Swammerdam*) Painter in Chief to his Imperial Majesty *Rodolph*, hath exactly colour'd by the Life five-and-thirty several Species of this Insect, with three hundred others, which are since cut upon Copper, and printed with the same Emperor's Licence and Privilege, being not inferior to those of *Gedart*.

But if our *English* Spider be not so venomous, yet those of some other Countries are reported to be so in a very high Degree, insomuch that *Scaliger* takes notice of a certain Species of them, (which he had forgotten) whose Poison was of so great Force as to affect one *Vincennus* thro' the Sole of his Shoe, by only treading on it. Even in *Gaseony* he observes, there is a very small Spider, which, running over a Looking-glass, will crack the same by the Force of her Poison (*A mere Fable*).

Remarkable is the Enmity recorded between this Creature and the Serpent, as also the Toad: Of the former it is reported, That, lying (as he thinks securely) under the Shadow of some Tree, the Spider lets herself down by her Thread, and, striking her Proboscis or Sting into the Head, with that Force and Efficacy, injecting likewise her venomous Juice, that, wringing himself about, he immediately grows giddy, and quickly after dies.

When the Toad is bit or stung in Fight with this Creature, the Lizard, Adder, or other that is poisonous, she finds Relief from Plantain, as is said, to which she resorts, and for which that Plant is reckon'd one of the Specifics.

In her Combat with the Toad, the Spider useth the same Stratagem as with the Serpent, hanging by her own Thread from the Bough of some Tree, and striking her Sting into her Enemy's Head, upon which the other, enraged, swells up, and sometimes bursts. To this Effect is the Relation of *Eraasmus*, which he saith he had from one of the Spectators, of a Person lying along upon the Floor of his Chamber in the Summer-time, to sleep in a supine Posture, when a Toad, creeping out of some green Rushes, brought just before in, to adorn the Chimney, gets upon his Face, and with his Feet sits across his Lips. To force off the Toad, says the Historian, would have been accounted sudden Death to the Sleeper; and to leave her there, very cruel and dangerous; so that upon Consultation



it was concluded to find out a Spider, which, together with her Web, and the Window she was fasten'd to, was brought carefully, and so contrived as to be held perpendicularly to the Man's Face; which was no sooner done, but the Spider, discovering his Enemy, let himself down, and struck in his Dart, afterwards betaking himself up again to his Web; the Toad swell'd, but as yet kept his Station: The second Wound is given quickly after by the Spider, upon which he swells yet more, but remain'd alive still. The Spider, coming down again by his Thread, gives the third Blow; and the Toad, taking off his Feet from over the Man's Mouth, fell off dead.

And so much for the historical Part: I shall say somewhat now with relation to the Effects and Cure of the Poison; an Instance of which I remember, when a very young Practitioner, being sent for to a certain Woman, whose Custom was usually, when she went to the Vault by Candle-light, to go also a Spider-hunting, setting Fire to their Webs, and burning them with the Flame of the Candle still as she pursued them. It happen'd at length, after this Whimsy had been follow'd a long time, one of them sold his Life much dearer than those Hundreds she had destroy'd; for, lighting upon the melting Tallow of her Candle, near the Flame, and his Legs being entangled therein, so that he could not extricate himself, the Flame or Heat coming on, he was made a Sacrifice to his cruel Persecutor, who delighting her Eyes with the Spectacle, still waiting for the Flame to take hold of him, he presently burst with a great Crack, and threw his Liquor, some into her Eyes, but mostly upon her Lips; by means of which, flinging away her Candle, she cry'd out for Help, as fancying herself kill'd already with the Poison. However, in the Night her Lips swell'd up excessively, and one of her Eyes was much inflam'd; also her Tongue and Gums were somewhat affected; and, whether from the Nausea excited by the Thoughts of the Liquor getting into her Mouth, or from the poisonous Impressions communicated by the nervous *Fibrillæ* of those Parts to those of the Ventricle, a continual Vomiting attended: To take off which, when I was call'd, I order'd a Glass of mull'd Sack, with a Scruple of Salt of Wormwood, and some Hours after a Theriacal Bolus, which she flung up again. I embrocated the Lips with the Oil of Scorpions mix'd with the Oil of Roses; and, in Consideration of the Ophthalmia, tho' I was not certain but the Heat of the Liquor, rais'd by the Flame of the Candle before the Body of the Creature burst, might, as well as the Venom, excite the Disturbance (altho' Mr. Boyle's Case of a Person blinded by this Liquor dropping from the living Spider, makes the latter sufficient); yet observing the great Tumefaction of the Lips, together with the other Symptoms not likely to arise from simple Heat, I was inclin'd to believe a real Poison in the Case; and therefore, not daring to let her Blood in the Arm, I did, however, with good Success, set Leeches to her Temples, which took off much of the Inflammation; and her Pain was likewise abated, by infilling into her Eyes a thin Mucilage of the Seeds of Quinces and white Poppies extracted with Rose-water; yet the Swelling on the Lips increased; upon which, in the Night, she wore a Cataplasm prepared by boiling the Leaves of Scordium, Rue, and Elder-flowers, and afterwards thicken'd with the Meal of Vetches. In the mean time, her Vomiting having left her, she had given her, between whiles, a little Draught of distill'd Water of Carduus Benedictus and Scordium, with some of the Theriaca dissolved; and upon going off of the Symptoms; an old Woman came luckily in, who, with Assurance suitable to those People, (whose Ignorance and Poverty is their Safety and Protection) took off the Dressings, promising to cure her in two Days time, altho' she made it as many Weeks; yet had the Reputation of the Cure; applying only Plantain-leaves bruised and mixed with Cobwebs, dropping the Juice into her Eye, and giving some Spoonfuls of the same inwardly, two or three times a Day.

I must remark upon this History, which is from Turner, that the Plantain, as a Cooler, was much more likely to cure this Disorder, than warmer Applications and Medicines.

The same young Woman told me, before this Accident happen'd to her, the Smell of their Burning oftentimes so affected her Head, as that the Objects about her seem'd often to turn round; she grew faint also with cold Sweats, and sometimes a light Vomiting; yet so great was her Delight in torturing these Creatures, and beating up their Quarters, that she could not forbear, till one of them thus alarmed her.

Something akin to this was the Case related by Nic. Nicholus, of a Man he saw at his Inn in Florence, burning a large black Spider in the Flame of a Candle, and staying some time in that Place, from the very Fume thence arising, grew feeble, and fell into a fainting Fit, suffering all Night great Palpitation at the Heart, and afterwards a Pulse so very low as was scarce to be felt. He was recover'd, says the Relator, by giving him Theriaca, mixed with the Species Diamolchu, and Powder of Zedoary.

In the same City, Nic. Florent. relates, there happen'd a sad Misfortune in a certain Monastery, by which many of the Monks received their Death, by drinking Wine incautiously

out of a Vessel in which a certain venomous Spider was found drowned, notwithstanding what hath been before said, of their being inoffensively taken into the Stomach; but these latter very likely might be widely differing, if not in their outward Form, yet in their inward compounding Particles, or their malignant Nature and Properties.

Galen, taking notice of this Insect, subjoins this Interrogation: Who would think so small a Creature should work so mighty an Alteration upon the whole Body of Man; as we find she does, only by a little Dart or Sting just entering the outward Skin, by which certainly she conveys a poisonous Moisture, or something, however, more spirituous, yet still venomous to the Blood?

Sennertus takes Notice of the Signs of this Bite or Sting to be a Stupor or Numbness upon the Part, with a Sense of Cold, Horror, or Swelling of the Abdomen, Paleness of the Face; involuntary Tears, Trembling, Contractions, a perpetual Desire to make Water, Convulsions, cold Sweats; but these latter chiefly when the Poison has been received inwardly.

As to the Cure, not slighting the usual Alexipharmics taken internally, he says, the Place bitten must be immediately wash'd with salt Water, or a Sponge dipped in hot Vinegar, or somented with a Decoction of Mallows, Origanum, and Mother of Thyme; after which a Cataplasm must be laid on of the Leaves of Bay, Rue, Leeks, and the Meal of Barley, boiled with Vinegar, or of Garlick, and Onions, confus'd with Goats Dung, and fat Figs. Mean time the Patient should eat Garlick, and drink Wine freely.

But if the Poison were admitted into the Stomach, Vomiting must be procured for its speedy Discharge, and then some proper Antidote prescribed; among which Gesner commends beyond all others the purest, whitest, and fattest Rosin resembling Frankincense; *Fraxastorius*, Bole and Vinegar taken inwardly, with which he recovered a Person stung, or bitten in the Neck, by a venomous Spider. *Turner de Morbis Cutaneis*.

*Celsus*, Lib. 5. Cap. 27. advises to lay a Cataplasm of Rue and Garlick, beat up with Oil, to the Part wounded by a Spider, or Scorpion.

ARANTIA, the same as AURANTIUM, which see. *Blanc*.

ARARA *Fruetus secundus*, Cap. 21. Lib. 2. *Exot. Clus. Arara Fruetus Americanus*, J. B.

It grows in *Cayana*; the Inhabitants bruise it, and boil it in Water, with which they wash malignant Ulcers. They say also it is good to loosen the Belly, which I suppose is meant of the Kernel. *Raii Hist. Plant.*

ARATICU. Ray mentions three Sorts of Trees under this Name. The first is the

ARATICU *prima seu simpliciter dicta*, Francisci Redi Experiment. Natural. p. 75. *Araticu Ponbe*, Marcgrav. & Pison. This Dr. *Robinson* thinks is THE SOUR-SOP.

The Tree is like an Orange in its Trunk and Boughs, and the Colour of its Bark, but unlike in Leaves, Flowers, and Fruit.

The Leaves, scorched in the Fire, and apply'd in Oil to an Abscess, maturate, break, and heal it in an excellent manner.

The second is the

ARATICU *APR*, Pison. Marcgrav. Redi Experiment. Nat. p. 77. *Nostratibus*, THE CUSTARD APPLE. *An Anona Oviedi?*

ARATICU *de mato Pison*, *An Baly Insulæ Fructus*, *aspero Cortice*, Clus. & *Raii Hist. Plant.*

ARBOR, *δένδρον*, a Tree, is defined to be a woody Plant; the biggest of all in Thickness and Height, whose Stock is perennial, and single by Nature, and is divided into many larger Branches, which the Greeks call *ἀγκύρας*, and *ῥαχίς*; and afterwards into many small Branches [Sprigs], which the Greeks call *κλάδαι*, and the Latins *Surculos*. *Miller's Diet.*

ARBOR *Virginiana*, *Citriæ vel Limoniæ Folio*, *Benzoinum fundens*, H. A. The Benjamin-tree, *vulgo*. This Tree is found in great Plenty in most Parts of Virginia and Carolina, and is kept in curious Gardens of Trees, amongst many other Plants of those Countries, here in England. When it was first introduced, it was generally believed, that the Gum Benjamin of the Shops was an Exudation from this Tree; but it is now thought to proceed from a very different Tree.

ARBOR *Zeylanica*, *Cotini Foliis*, *subtus Lanugine villosis*, *Floribus albis Cuculi modo laciniatis*. Pluk. Phyt. THE SNOW-DROP-TREE.

ARBOR *Americana*, *pinnatis Fraxini Foliis*, *Fructu reniformis Phaseolum exprimente*. Pluk. Phyt. SPANISH ASH.

ARBOR *baccifera lanifolia aromatica*, *Fructu viridi calyculato racemoso*. Sloan. Cat. Jam. The Winter's-bark, or wild Cinnamon-tree. It grows in the Low-lands of Jamaica in great Plenty, to the Height of thirty Feet, or more. The Leaves, Fruit, Bark, and every Part of this Tree are very aromatic, hot, and biting to the Taste. The Bark is used as Spice in most of the English Plantations in America, and was formerly pretty much used in Medicine in England, under the Title of *Canella Alba*, or *White Cinnamon*, but at present it is not much in Use.



*ARBOR laurifolia venenata, Folio leviter serrato oblongo obtuso, copiosum Lac præbens.* Sloan. Cat. THE POISON-TREE.

This Tree grows plentifully in *Jamaica*, and other warm Parts of *America*. It abounds with a milky Juice, which is accounted very poisonous; if the Leaves are broken, the Juice will flow out very fast; and, if it falls on Cloth, will cause it to wash in Holes, much after the same manner as the Juice of the Manchineel-tree.

*ARBOR Americana, Fraxini Foliis, Fructu conoide.* The Mahogany-tree. It grows chiefly on the North Side of *Jamaica*.

*ARBOR excelsa, Coryli Folio ampliore.* Houst. It grows only at *Campeachy*.

*ARBOR in Aqua nascens, Foliis latis acuminatis & non dentatis, Fructu oleagino minore.* Catesb. Hist. Nat. THE TUPELO-TREE. It grows in *Virginia*, *Maryland*, and *Carolina*.

*ARBOR SAPONARIA, Offic. Arbor saponaria Americana,* Raii Hist. 2. 1548. *Prunifera racemosa, folio alato, costa media, membranulis utrinque extantibus donata, fructu saponario,* Cat. Jamaic. 184. Sloan. Hist. 2. 131. *Prunifera seu Nuciprunifera, fructu saponario orbiculato monococco nigro, Americana,* Pluk. Phytog. 217. Fig. 7. *Nuciprunifera arbor Americana, fructu saponario orbiculato monococco nigro,* Pluk. Almag. 265. *Arbor Misticæ provinciae fructu avellanæ simili,* Laet. 260. Jonf. Dendr. 114. *Quity, Pison.* (Ed. 1658.) 162. *Quity Brasiliensis,* Marcg. 113. *Saponariæ sphaerulæ,* Chab. 22. *Saponaria sphaerulæ arboris filicifoliæ,* J. B. 1. 312. *Nuculæ saponariæ non edules,* C. B. Pin. 511. *Sapindus foliis costæ alatæ innascentibus,* Tourn. Inst. 639. *Baccæ Bermudenses,* Marl. Obs. SOAP-BERRIES.

It grows in *Jamaica*, and other Parts of the *West-Indies*; the Fruit is ripe in *October*, and, when dry, is spherical, of a reddish Colour, and less than a Gall, of a large Eye, and a bitter Taste, but no Smell, containing one round black Stone.

It is much recommended against the *Chlorosis*, and the Berries are reckoned a singular and specific Remedy against that Distemper, working a perfect Cure after an ineffectual Use of Chalybeates. The Spirit, Tincture, or Extract, are more proper to be used than the crude Berries.

*ARBOR VITÆ, Offic. Ger. 1187. Emac. 1368. Park. Theat. 1478. Raii Hist. 2. 1408. Arbor Vitæ, sive Paradisiaca,* Chab. 73. *Arbor Vitæ, sive Paradisiaca vulgò dicta odorata ad Sabinam accedens,* J. B. 1. 286. *Arbor Vitæ, Thuya,* Mont. Ind. 37. *Arbor Cupressi similis in Syria,* Jonf. Dendr. 332. *Thuya Theophrasti,* C. B. Pin. 488. Tourn. Inst. 587. Elem. Bot. 489. Boerh. Ind. A. 2. 180. THE TREE OF LIFE.

It is a Native of *America*, but is never found in *Europe*, except in the Gardens of the Curious. The Leaves are used as an Alexipharmic, and Diuretic. *Mont.*

It is an opening and warming Plant, provokes the Menfes, and is good against the *Chlorosis*; bruised with Honey, it dissolves Tumors. The Oil is commended against the Gout, being rubbed on the Part; for it acts like Fire, by stimulating and opening. It cleanses Beds from Lice and Fleas. *Boerh. Hist. Dale.*

This Tree never grows to any Bigness with us in *England*, being a Stranger, and only planted in Gardens. The younger Branches are flattish and tough, bearing on each Side several winged Leaves, which grow thick together, scaly, somewhat like Cypress, but are smooth, and not prickly at the End, and very flat; they have a strong resinous unpleasant Scent, which some compare to old rotten Cheese. It bears little small scaly white Cones at the Extremities of the Branches. It came originally from *Canada*.

The Leaves have a digesting attenuating Faculty. *Parkinson* says, that, chewed in the Mouth for several Mornings fasting, they have done great Service in expectorating and freeing the Lungs from thick purulent Phlegm. It is but rarely used. *Miller. Bot. Off.*

This Tree receives the Name of *Arbor Vitæ*, or *The Tree of Life*, because it flourishes with a perpetual Greenness, and breathes a fragrant and delicious Odour: It is also called the *Cedrus Americana*, and the *Arbor Semper Viridis*. It is imported into *Europe* from *Canada* in *America*, and only to be found in the Gardens of the Curious. It is at all Seasons clothed with its Leaves, which, though they become somewhat pale in the Winter-time, do nevertheless resume their native Splendor, and usual Verdure, in the Spring. The Tree itself is strait, but rough and uneven in its Surface; its Bark is of a kind of intermediate Colour between Red and Brown, and is unequal and scabrous. The Wood itself contains a Gum, and sends forth a strong, but, at the same time, an agreeable Smell. In the Beginning of the Summer it bears small yellow Flowers, which contain and fold up in them, as in a kind of Turbant, a bitter Seed. *Cassor. Durantes* informs us, that there is a Species of this Tree principally found in *France*, which is of a warming and drying Nature, of a somewhat bitter Taste, but of a very agreeable Smell; and that it also

preserves the Health, and protracts the Life of Men. This Tree, says *Camerarius*, in *Hort. p. 169.* is deservedly had in Esteem, not only on account of its fragrant Smell, which is so strong, that its Branches, bruised and applied to the Nostrils, sometimes occasion a Discharge of Blood from them; but also on account of its other valuable Virtues and Properties. From it there is distill'd a Water and an Oil which prove serviceable in Paroxysms of the Gout, if duly applied to the Parts affected. The Balsam and Oil of *Arbor Vitæ*, or *The Tree of Life*, were very much used during the Time of the Plague in *Dresden*. *Joh. Mich. Not. in Schroder. Pharm. Barth. Zorn. Botanolog.*

*ARBOR BACCIFERA CANARIENSIS.* See *VERVA MORA*.

*ARBOR BENZOINIFERA.* See *BENZOIN*.

*ARBOR BRASILIANA juglandi similis.* See *COPAU*.

*ARBOR CAMPHORIFERA.* See *CAMPHORA*.

*ARBOR CORAL.* See *CORALLODENDRON*.

*ARBOR CREPITANS.* See *HURA*.

*ARBOR EXOTICA Fraxini Fol.* See *NEGUNDO*.

*ARBOR FEBRIFUGA Peruviana.* See *QUINQUINA*.

*ARBOR FRAXINI FOLIO, C. B.* See *AZEDARACH*.

*ARBOR JUDÆ.* See *SILICUASTRUM*.

*ARBOR LANIGERA Bontii.* See *GOSSYPIUM*.

*ARBOR LAVENDULÆ FOL. Clus.* See *FRUTEX Indiæ, or Lav. Fol.*

*ARBOR LAURIFOLIA SINENSIS.* See *LICHI*.

*ARBOR MANNIFERA.* See *MANNA*.

*ARBOR PENTAPHYLLOS Virgin.* See *PENTAPHYLLOS*.

*ARBOR DE RAYZ.* See *FICUS INDICA*.

*ARBOR S. THOMÆ.* See *MANDARIS*.

*ARBOR SPINOSA Virgin.* See *HERCULIS CLAVA*.

*ARBOR TINCTORIA.* See *TINCTORIA*.

*ARBOR TULIPIFERA.* See *TULIPIFERA*.

*ARBOR VINIFERA.* See *COUTON*.

*ARBOR UVIFERA TABACENSIS.* See *UVIFERA*.

*ARBOR DIANÆ* is a sort of Crystallization of Mercury and Silver dissolved in *AQUA-FORTIS*, which runs out in Branches like a Tree.

*ARBOREUS*, Arboreous, of, or belonging to, or of the Nature of Trees. An Epithet which Botanists apply to those Funguses or Mosses which grow on Trees, in Distinction from those which grow on the Ground, as *Agaric*, *Jews-ear*, &c. *Miller's Dictionary.*

*ARBUSCULA, ἀρβύσκον*, a Diminutive from *Arbor*, a Tree. A little Tree, or Shrub.

*ARBUSCULA Africana repens, Folio ad Latera crispo, ad Polygonam relata.* Boerh. Ind. alt. An African trailing Shrub, with curled Knot-grass Leaves, and Flowers, somewhat resembling those of Orach. It is preserved in many Gardens for Variety rather than Beauty. *Miller's Add.*

*ARBUSCULA Coralloides.* See *CORALLODENDRON*.

*ARBUTUS, Offic. Ger. 1310. Emac. 1496. Park. Theat. 1489. Raii Hist. 2. 1576. Synop. 3. 464. Mer. Pin. 9. Arbutus, Unedo Theophrasti,* Phyt. Brit. 10. *Arbutus Comarus Theophrasti,* J. B. 1. 83. Chab. 4. *Arbutus folio serrato,* C. B. Pin. 460. Tourn. Inst. 599. Elem. Bot. 471. Boerh. Ind. A. 2. 217. Jonf. Dendr. 64. Pluk. Almag. 49. *Unedo Plinii vulgò,* Herm. Cat. Hort. Lugd. Bat. 634. THE STRAWBERRY-TREE.

It grows in Woods and Thickets, that are warmly situated. The Fruit is used, which is of a sharp and austere Nature. *Dale.*

The *Arbutus* is a Tree like the Quince-tree, of a thin Bark, or with thin Leaves, (λεπτοφύλλον) and bearing a Fruit of the Size of a Plum, but without a Stone, and called *Memacylum*, of a deep-yellow or red Colour, when ripe.

The Fruit is very husky Food, hurtful to the Stomach, and causes Head-ach. *Dioscorides, Lib. 1. Cap. 175.*

This Tree grows very frequently in *Spain*, *Sicily*, *Italy*, and *Narbon* in *France*. *Juba* reports, that in *Arabia* it rises to the Height of fifty Cubits, *Plin. L. 15. C. 24. P. Bellonius* informs us, that in the Valleys of *Mount Athos*, so much celebrated by the Antients, the *Arbuti* grew up to Trees of a huge Size and Bulk. Throughout the Winter it retains the Verdure of its Leaves, which are large, and whose Edges are full of Points, and about the Middle of each Leaf there is a reddish Vein. It bears white and fragrant Flowers, which resemble Honey-suckle, or Lilies of the Valley. After its Flowers are fallen, it bears a round thick Fruit as large as a Strawberry, which is at first green, then yellow, and, last of all, red, of a coarse, bitter, and not very pungent Taste. Some call its Fruit *Comarus*, and *Unedo*, for this Reason probably, that only one of them should be eaten at a time, according to *Pliny*, *Galen*, *Dioscorides*, and some others, assert, that the Fruit, eaten in too large a Quantity, is prejudicial to the Stomach, and excites Head-achs. For my share, says *John Bauhine*, they always occasioned a Pain in my Stomach when I happened to eat them. But *Car. Clusius* says, he had eaten many of them without sustaining any manner of Injury, *Lib. 1. var. Plant. Hist. C. 30.* Many distil a Water from its Leaves and Flowers in *Balneo Mariæ*, which they look upon as a mighty Preservative against the



the Plague, especially if used soon enough. *Amatus Lusitanus* informs us, that it is a sacred Preservative and Antidote against the Plague and Poisons. *Matthiolus* mixes it with the Powder of Bone of *Stag's Heart*. Many also make use of its Root against the Plague. Tanners use its Leaves in preparing their Leather; and Bird-catchers use its Seeds for catching their Prey in the Winter-season. *Barth. Zorn. Botanolog.*

ARCA Arcanorum. The *Mercurius Philosophorum. Castellus*.

ARCANUM, ἀπόρρητον, ἀπόκρυφον, μυστικόν. A kind of Remedy whose Manner of Preparation, or singular Efficacy, is industriously concealed, in order to enhance its Value. *Paracelsus* describes it to be a principal Medium, which ought to be investigated by Experience.

ARCANUM, by the Chymists, is generally defined a thing secret, incorporeal, and immortal, which cannot be known by Man, unless by Experience; for it is the Virtue of every thing, which operates a thousand times more than the thing itself.

The *Arcanum Materiale* is a specific Extract more nearly allied to the Matter of the Body. But since the Matter of compound Bodies consists of two Elements, the *Moist* and the *Dry*, (for Air and Fire are rather the *Form*, and are to be considered as *Efficients*) therefore this *Arcanum* must also be of two Kinds, that is, the *Aqua Stillatitia*, and the *Coagulum Specificum*.

The *Arcanum Specificum* is an Extract of the interior Nature, presenting us with the Substance of every thing in a nearer View, so that the Thing itself may be known in it; for which Reason we are to take the utmost Care, that the substantial Crasis or Contexture be not spoiled, because in this respect it is called *Specific*, and differs from the *Quinta Essentia*, which for its consummate Subtlety, and exalted Rank, seems almost to desert from its own to the superior Class of *Æthereals*. This *Arcanum Specificum* is of two Sorts, one more *formal*, which is called the *Æstral*, the other more *material*. *Rulandus*.

At present there are three remarkable Remedies, which pass under the specious Name of *Arcanums*, which are,

#### ARCANUM CORALLINUM.

1. Take of red Precipitate, four Ounces; put it into a Retort; add to it Spirit of Nitre, eight Ounces; set it in a Sand Furnace, and draw off the Spirit by a gradual Heat raised to the fourth Degree. This Operation will be performed in five or six Hours. Return that Spirit of Nitre with four Ounces of new Spirit; and, at last, let it continue at least two Hours, in the fourth Degree of Fire; then let it all cool, and there will be a very red and subtile Powder, which put into a Crucible, and set in a Fire of Charcoal, but not exceeding a Worm-red, half a Quarter of an Hour. Then put it into a Mattrafs, and to it three Pounds of distilled Fountain or Rain-water; set it in a Sand Furnace, and give it a gradual Fire till it boils, and so keep it half an Hour. Pour off that Water by Inclination, and dry the Powder gently; then put to it of tartarized Spirit of Wine, twelve Ounces; and in a gentle Heat draw it off, and so proceed to two Cohobations. Then put to it twelve Ounces of fresh tartarized Spirit of Wine; fit a Glass to the Mouth of the Cucurbit, to make it a Circulatory; let it stand in a gentle Heat of Sand forty-eight Hours; and, at the last of all, let it simmer a little, then let all cool: Decant the Spirit of Wine, and dry the Powder.

This does not greatly differ from the Prince's Powder. Some esteem this the best and safest of this Tribe: It operates chiefly by Stool. Its Dose is from three to ten Grains. This is also reckoned good in the Gout, Dropsy, Scurvy, and Itch, as well as Venereal Infections.

#### 2. ARCANUM DUPLEX, sive DUPLICATUM.

Take any Quantity of the Caput Mortuum of Aqua-fortis, made with equal Parts of Nitre and Vitriol, and dissolve in hot Water by standing some Hours, and now-and-then stirring the Mixture. Let the Water be filtered; evaporate to the Appearance of a Skin upon the Surface, or even to a Dryness, and leave it to shoot.

This is also in some Authors by the Name of *Nitrum Vitriolatum*, and *Sal Ducis Holfatiæ*; and is greatly extolled for a Diuretic, Sudorific, and, as the Humours are disposed, sometimes for a Cathartic too; but we hardly ever meet with it in Prescription. Its Dose is from half a Scruple to half a Dram.

#### 3. ARCANUM JOVIALE.

Make an Amalgama with equal Quantities of Quicksilver and Tin: Powder it, and pour upon it Spirit of Nitre, till it somewhat more than covers it, which let stand in a

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gentle Digestion for some Hours; then by a Retort draw off the Spirit of Nitre. The remaining Matter take out, and wet it with Spirit of Wine rectified, which burn away. This repeat five or six times, until the pungent Taste is worn off.

This is recommended in *Bates's Dispensatory* for a powerful Sudorific. Its Dose is from three to eight Grains. *Quincy's Dispensat.*

ARCEUTHOS. The same as JUNIPERUS, which see.

ARCHÆUS, ἀρχαῖος, ancient, former. Ἀρχαῖον εὖρος, in *Hippocrates*, often signifies the former healthy State of the Body before the Attack of a Disease.

ARCHAGATHI EMPLASTRUM LENE. A mollifying Plaister invented by *Archagathus*. Its Preparation is given by *Celsus, Lib. 5. Cap. 19.*

ARCHAGATHUS. A celebrated Physician amongst the Romans.

'Tis by some asserted, that before the Arrival of *Archagathus* at Rome, Physic was not so much as known in that City; and if we may believe *Pliny*, this useful Branch of Learning was unknown to the Romans, till after all the other liberal Arts and Sciences were established among them: "The Roman People," says he, [ *Lib. 29. Cap. 1.* ] were more than six hundred Years without Physicians, though they were very early in cultivating the other Arts, and even fond of *Physic* itself, till, becoming acquainted with it by Experience, they condemn'd it. *Cassius Hemina* informs us, that *Archagathus* the Son of *Lyfanius* the *Peloponnesian* was the first Physician who arrived at Rome, under the Consulship of *Marcus Aurelius* and *Marcus Livius*, in the Year of the City 535. adding, that he had the Freedom of the City bestowed upon him; and that the Public had, at their own Charges, purchased a Shop for him in the Street of *Accilius*, that he might exercise his Profession to the greater Advantage; that at first they gave him the Surname of *Vulnerarius*, or *The Healer of Wounds*; that his Arrival was very agreeable to the People, but that soon after, his Practices of *Burning* and *Cutting* appearing cruel and barbarous in the Eyes of the People, they exchanged his former Surname for that more infamous one of *Executioner*; from which time they conceived an implacable Aversion to *Physic* and all its Professors."

It appears somewhat surprising, that a People so polite as the Romans were, should be so long without Physicians. To the Authority of *Pliny* we shall oppose that of *Dionysius of Halicarnassus*, who in his tenth Book has these Words: "The Plague beginning to appear in Rome in the Year of the City 301. and happening to rage more violently than any other Plague with which they had been afflicted in the Memory of Man, it carried off almost all the Slaves, and half of the Citizens, the Physicians not being able to attend and take care of such a large Number of Patients." There were then Physicians in Rome at that time, that is, more than two hundred Years before the Period mentioned by *Pliny*, as indeed there have been Practisers of this Art in all Ages among all People. But, in order to reconcile these two Authors, we must suppose, that *Pliny* means only foreign Physicians, especially those of the Greek Nation; and indeed he explains himself to that Purpose a little afterwards in these Words: "In order to be convinced of the Aversion the Romans in those Days bore to Physic, we need only hear the Sentiments of *Marcus Cato* upon that Point, who lived seventy Years after *Archagathus*, and who was a Man of whom we may say, that the Honour of a Triumph decreed in his Favour, and the Dignity of the Censorship, which Office he bore, are the least shining Parts of his Character, since so many other Circumstances concurr'd in his Person to render him venerable and awful." These following are his own Words, taken from a Letter he wrote to his Son: "I will tell you, my Son *Marius*, at a proper Occasion, what Notion I entertain of these Greeks, and what I think most valuable in Athens. It is not improper to study their Learning and Sciences cursorily, but 'tis by no means necessary to make one's self a complete Master of it. I shall say no more at present of that wicked and arrogant Race; but persuade yourself of this, as much as if an Oracle had spoken it, that as soon as this Nation has communicated her Learning to us, she will spoil and corrupt Rome; and this dire Event will be still more easily brought about, if she continue to send her Physicians to us. They have sworn among themselves to kill all the Barbarians, by means of their Art; and still they exact a Fee for their Pains from the Patients with whom they deal, that they may gain their Confidence more effectually, and consequently have it in their Power to destroy them with the less Danger of Suspicion. They have such a Degree of Insolence as to call not only other Nations, but us, Barbarians; nay, they carry their Arrogance farther, and style us *τάρταροι*, rude, and Strangers to true Politeness. In a Word, my Son, remember, that I have discharged you from having any thing to do with Physicians."



'Tis plain from the Strain of *Cato's* Language, that he had only foreign Physic in his View; and this *Pliny* acknowledges, by starting to himself the following Objection, which he makes use of as a Conclusion: "Must we then believe, that *Cato* condemn'd a thing so useful and beneficial as Physic? Assuredly not; since he himself vouchsafes to inform us by the Use of what Medicines he himself and his Wife had arrived at such an advanced Age; and that he had written a Book, in which he lays down the Method of his Practice, with regard to his Son, his Slaves, and even his Cattle, when they were indisposed."

The *Romans* then were not absolutely without Physicians in the earlier Ages of their Republic; but in all Probability, before the Arrival of *Archagathus*, they only used that *Natural Physic*, or simple Empiricism, which we may well suppose to have been practised by the Infant World, when Men made their first Appearance upon it. This was the Physic relished by *Cato*, and on which he wrote the first of all the *Romans*. He had some Peculiarities in his Practice, which, if they will not inform the Judgment, will, at least, excite the Laughter of every thinking Person; for 'tis well known, that he approved of superstitious Remedies; and in that Part of his Works which has reached our Hands, he has given us an inimitable Formula of Words to be pronounced for the Cure of a Dislocation or Fracture; but because there is not a Possibility of translating them, I shall give them as he himself gave them: "*Luxum si quod est, hac Cautione sanum fiet. Harundinem prende tibi viridem P. 4. aut 5. Longam. Mediam diffinde, & duo Homines teneant ad Coccendices. Incipe Cantare in alio. S. F. Motas vata Daries Dardaries, Astataries Diffunapiter, usque dum coeant. Ferrum insuper jactato. Ubi coierint, & altera alteram tetigerit; id Manu prende, & dextra sinistra praeceide. Ad Luxum aut Fracturam alliga, sanum fiet, & tamen quotidie cantato in alio, S. F. vel Luxato, vel hoc modo, huat, hanat, huat, ista. Pistla, sista, domiabo dannaustra, & luxato. Vel hoc modo, huat, haut, haut, ista, sis tar sis ardannabon dunnaustra.*" *Cato de re rustica* Cap. 160.

*Pliny* also informs us, that *Cato* in his Practice made a great deal of Use of Cabbage, in which, as he observes, the whole Materia Medica of the *Romans* consisted for six hundred Years. This *Panacea* must undoubtedly appear ridiculous in our Days; but we shall be less surpris'd, that this People confided so much in a common Plant, if we call to mind the uncommon Esteem in which it was had among the most learned and skilful of the first *Greek* Physicians.

*Plutarch* observes, with regard to the Practice of *Cato*, that he did not approve of Abstinence for the Cure of Diseases, but recommended Herbs, and the Flesh of Ducks, Pigeons, and Hares. But this Author does not pay so profound a Veneration to the Physic of *Cato* as *Pliny* does; he observes on the contrary, that the Wife and Son of that *Roman* died before himself; adding at the same time, that if *Cato* lived to so great an Age, it was owing to the natural Goodness of his Constitution, and not the judicious and happy Choice of his Medicines. As *Plutarch* was a *Grecian*, he may possibly be suspected of being animated with too keen a Desire of revenging the Cause of the *Greek* Physicians; though, at the same time, what he asserts has very much the Air of Probability.

As for the Physic of the *Greeks*, 'tis not at all surpris'ing, that the *Romans* should be unacquainted with it till the Arrival of *Archagathus* amongst them, since even in other Instances they were very late in cultivating the Sciences and liberal Arts. And tho' *Pliny*, in the Passage already quoted, affirms, that the *Romans* soon received the Arts; yet this is only to be understood of these mechanical Arts, which are absolutely necessary to human Life: "*Cicero* [*Tusculanar. Quæst. Lib. 1.*] informs us, that Poetry was not introduced among the *Romans* till very late, and that even Philosophy had been in great Disrepute till his Days. *Suetonius* also [*De illustrib. Grammaticis*] affirms, that Grammar was not at all in Use among the first *Romans*, much less was it esteemed and valued, because the People of these Days were as yet savage and uncivilized, and so thoroughly addicted to the Business of War, that none apply'd themselves very much to the liberal Arts." But there cannot possibly be a more convincing Proof, that Learning made her Entrance into *Rome* very late, than *Cato's* Dread, lest she should make her Appearance in his Days, though he lived, as we have observed, seventy Years after *Archagathus*. Though the greater Part of this Article may seem to be a kind of Digression, yet, upon a closer View, the Whole will appear to have some Connection with the Life and History of *Archagathus*. Besides, 'tis fraught with so much Learning, and has such a direct Tendency to acquaint us with the State of Physic in *Rome*, that it will speak for its own Propriety. *Le Clerc. Histoire de la Médecine.*

ARCHALTES, or, according to *Rulandus*, ARCHATES. By this Word *Paracelsus* means the Foundations or Pillars of the Earth, because they do not seem to be sustained by one an-

other, but by the secret and wonderful Operation of God. *Rulandus. Castellus.*

ARCHANGELICA. See ANGELICA.

ARCHE, ἀρχή, a Beginning, has a Multiplicity of Meanings among Physicians, according to *Galen*. Sometimes, says he, it signifies the first Attack of a Disease without any Length of Time at all; sometimes it means the same continued, tho' but for a short Space. Besides these Significations, ἀρχή denotes the first Stage of the Distemper, the second being the *Anabasis*, ἀνάβασις, [or Increase; the third the *Acme*, ἀκμή, "State or Height;" and the last the *Paracme*, παρακμή, "Declension." *Aetius* by the *Arche* of a Distemper understands the Beginning of the Patient's Decubiture. Again, *Galen* tells us, that *Hippocrates*, as well as other Physicians, use this Word to signify the Beginning of a periodical Distemper, on the first Day of the Transition from a healthy to a morbid State, which comes about again on the third or fifth Day in proportion to the Period: He says, moreover, that *Hippocrates*, and the ancient Physicians, meant by *Arche*, a Space of Time in the Beginning of a Disease which admitted of Help, whether by Bleeding, Clysters, &c. and that the *Arche* in a Hætic Fever was not circumscribed or limited by Days or Hours, as it was in other Distempers, but by the Quality of the Affection. In this Sense is *Arche* taken by *Tully*, when he writes to his Friend *Atticus*, Δυσσέβια tua mihi valde molesta; medere, amabo, dum est ἀρχή. "I am very much concern'd about your Difficulty of Urine; let me beg you to get it cur'd while it is recent."

ARCHEGONOS, ἀρχηγόνος, from ἀρχή, a Beginning, and γίνομαι, to be, or be produc'd, Primigenial.

ARCHENDA, a Powder prepar'd of the Leaves of the Egyptian Privet, called *Alcanna*, or *Elhanna*, by the Natives, with which they plaster up their Feet after bathing, and wonderfully commend it against all Humidity, ill Smell, and Imbecillity of the Feet, on account of its astringent and strengthening Quality. See *ALCANNA*.

ARCHEUS is a Term introduced by *Paracelsus*, and defined by his Interpreter to be an invisible Species, vague, and separating itself from Bodies, the Physician's Power, and Nature's Virtue. *Paracelsus* says of it, That it is the Nature and Disposer of Things, *De Tartaro*; is the Separator of the Elements, *De Elemento Aquæ*; disposes and orders all Things in Nature, that every thing may be brought to the ultimate Matter of its Nature, i. e. *de Mineralibus*; is constituted to compound Things which ought to be united, *ibid.* and is the Destroyer of Bodies, *Chirurg.* that the Office of the *Archeus* in the Microcosm is to separate the Pure from the Impure, being the prime Operator in the Stomach, that prepares and distributes whatever we eat and drink, and employs the expulsive Powers in discharging the tartareous Recrements by the Intestines and Bladder; and as the *Archeus* of the Stomach is more or less perfect, so in proportion are the Separations of the Pure from the Impure, and of consequence the Microcosm is more or less subject to Disorders, *De Morbis Tartar.* that the great *Archeus* is the Distributor of the different Heats necessary for as many different Digestions according to the Nature of the Parts, *Modus Pharmacandi, Vol. 1. p. 815.* that there is a Virtue in Nature which is the *Archeus*, that disposes all things into their several Essences, separating one Thing from another, and furnishing Things with their proper Seeds, *Meteororum cap. 4. Vol. 2. p. 202.*

*Van Helmont* makes very frequent Use of this Word, and informs us, that the *Archeus* consists in a Connection of the vital Air, as Matter, with the seminal Form, which is the interior spiritual Nucleus, containing the Fecundity of the Seed, and of which the visible Seed is but the Pod. This *Archeus* is the Contriver and Director of Generation, investing itself with bodily Cloathing. In animate Beings it perambulates all the Recesses of the Seed, and transforms the Matter, according to the Entelechia of its own Image, here placing the Heart, and there the Brain; and to every Part assigning, out of its universal Monarchy, a Governor, according to its Exigency and final Use, which remains in his Office till Death; but the *Archeus* is always fluctuating, and never fix'd to any Member, but keeps a watchful Eye over every particular Governor of a Part, and is always clear and lively, but never idle. *Archeus Faber.*

By these Extracts we may perceive, that these Philosophers only meant *Nature*, by their *Archeus*.

ARCHIATER.

The Word *Archiater* or *Archiateros* has different Ideas affixed to it by different Persons: Thus *Chassaneus* imagin'd, that it imply'd no more than a Porter or Door-keeper of the Prince's Palace, as if one should say, *Princeps Atrii*; but this Conjecture is so absurd, that it in a manner confutes itself. *Accursius* has succeeded better in translating the Word *Archiater*, *Princeps* or *Chief of Physicians*, as if one should say ἀρχὴ τῶν ἰατρῶν.

This Opinion of *Accursius* was embraced by the ancient Translators of *Galen*, and some other learned Men, who rendered the *Greek* Word *Archiater* by the *Latin* ones, *Medicus primarius*. *Mercurialis* was the first who declared himself against this Explication of *Accursius*, and maintained that the Word *Archi-*



ater signified the *Physician of the Prince*, as if one should say, τὸ ἀρχιτρον ἰατρὸς. He endeavours to support his Opinion by this Reason, that the Word *Archiater* was never used by any Greek or Latin Author before the Days of the Roman Emperors. He even thinks, that this Word was not known till after the Reigns of *Tiberius* and *Claudius*, which is sufficiently prov'd by this Circumstance, that *Andromachus*, who lived under *Nero*, was the first who assum'd the Title of *Archiater*.

That Title, says *Mercurialis*, was not in Use before the Days of the Emperors, because the Thing imported by it had not as yet a Being; or in other Words, there could not possibly be *Physicians* to the Emperors, before the Emperors themselves were established. This is one Topic insisted upon by *Mercurialis*, in Defence of his Opinion; to which some may possibly reply, that the *Kings* or *Sovereigns* of other Countries might have also given the Name of *Archiatri* to their Physicians, if that Word signifies the *Physician of the Prince*. But one may retort this Argument, and say, that if the Word *Archiater* signifies the *Prince* or *Chief of Physicians*, the *Greeks* would not, in all Probability, have fail'd to bestow that Title upon *Hippocrates*, *Erasistratus*, and some others of their most eminent Physicians. Let this be as it will, 'tis an uncontested Fact, that the *Archiatri* were not so much as heard of before the Days of the Emperors.

*Mercurialis* adduces two Arguments more in Confirmation of his own Hypothesis: The first is, that *Andromachus* is not called simply *Archiater*, without any Mark of Distinction, but the *Archiater* of *Nero*. The second is, that if *Demetrius* and *Magnus*, who are called *Archiatri*, by the same Author who speaks of *Andromachus*, and had that Title bestowed on them under the Reigns of the *Antonini*, had not been the Physicians of these Emperors, then no Reason can be assigned, why they should have been called *Archiatri*, rather than *Archigenes*, *Soranus*, and several other Physicians, who flourish'd much about the same Time, and whose Names were sufficiently famous.

*Alciatus* embraces an Opinion, which seems to be a kind of Medium betwixt that of *Accursius* and *Mercurialis*; for he imagin'd, that the *Archiater* was in Reality the *Prince of Physicians*, because he was the *Physician of the Prince*, since the Man who bears that Character, is, for that very Reason, placed, in some measure, in a higher Sphere than other Physicians; but according to that Lawyer, it does not thence follow, that the Word *Archiater* is form'd of the Greek Words τὸ ἀρχιτρον ἰατρὸς.

These are the three different Opinions embraced with regard to the Meaning of the Word *Archiater*; for that of *Chassaneus* is of so trifling and diminutive a Nature, that it does not deserve a Place among the rest. I know not whether *Alciatus* has had any Abettors, but the Bulk of the learned World in general is divided between the Explications of *Accursius* and *Mercurialis*: Each has his respective Champions, and those too Men of Learning. The Opinion of *Mercurialis* is supported by *Cujacius*, *Zwinger*, *Casaubon*, *Mattius*, and *Vassius*; but notwithstanding the Authority of these great Men, *Meibomius* favours the Interpretation of *Accursius*, and adduces several Arguments in its Defence; the first of which is, that of all the several Greek Words which begin with *Archi*, such as *Architectus*, *Archiepiscopus*, *Architriclinus*, *Archilothes*, *Archiereus*, not one denotes any thing pertaining or relating to the Prince, but that they all equally import something that is the *first* or *most excellent* of its Kind. Just so says *Meibomius*, the *Archiater* is not the *Physician of the Prince*, but the *Prince* or *Chief of Physicians*, otherwise this Word would be the only Exception from the Rule now mentioned. *Casaubon* had indeed pretended, that the Word ἀρχιγυβερνήτης, in a certain Passage quoted by him, denoted the *Commander of the Ship in which the King sailed*, and not the *Commander of the whole Fleet*. But *Meibomius* confutes that learned Critic with a great deal of Solidity and Judgment.

The second Argument adduc'd by *Meibomius*, in order to prove, that the *Archiater* was not the *Physician of the Prince*, is, that some Authors make mention of one *Theon*, and one *Glaucus*, *Archiaters* of *Alexandria*, and of one *Cyrus*, *Archiater* of *Edessa*: Now there were neither Kings nor Princes in these Cities, in the Times of these *Archiaters*. He draws another Proof from a Passage of *Oribasius*, where that Author says, *That the Emperor Julian had called together all the Archiatri of the Country, and selected from their Number seventy-two of those whom he thought most learned, of which Number Oribasius himself was one*; from which it follows, that the *Archiatri* were very numerous, and dispersed thro' all the Quarters of the Empire. But to this Argument of *Meibomius* it may be reply'd, that the Passage on which 'tis built is not to be met with in the Greek Copy of *Oribasius*. The fourth Argument adduced by this learned Physician is drawn from this, that *Galen*, or the Author of the Book intitled *De Theriaca*, when speaking of *Andromachus*, says, *That his Skill in Medicine was very extensive; and that for that Reason the Emperor made Choice of him ἀρχιτρον ἡμῶν, to preside over us, that is, over the Physicians*; or, in other Words, to exercise the Office of *Archiater*, since he had the Title of it bestow'd on him. The fifth Argument ad-

duc'd by *Meibomius* in Defence of *Accursius's* Interpretation, is, that *St. Augustine* calls *Æsculapius Archiater*, by which he undoubtedly meant no more than that he was the *Chief of Physicians*; and that *St. Jerom* gives the same Title to the *Saviour of the World*, which is just as much as if he had called *Jesus Christ* the *sovereign Physician*. *Meibomius* adds, that the Word *Archiater* is translated *Proto-medicus*, by the impure and barbarous Writers of the Latin Language; and says, that the Physicians of the Emperors were only simply call'd Physicians of *Cæsar*, or some Emperor, as appears by some Inscriptions; and that they never assum'd the Title of *Archiatri*, unless they belong'd to the Class of Physicians so call'd.

*Godofredus* on the other hand, favours the Opinion of *Mercurialis*, with regard to the Etymology of the Word *Archiater*. But he observes, that there were two Sorts of *Archiatri*, which *Mercurialis* had confounded with each other. The former Sort were called *Archiatri S. Palatii*, and according to *Godofredus*, were only employed in the Emperor's Court; whereas the latter Sort were only called simply *Archiatri*, or *Archiatri Populares*, and served the People in the Cities of *Rome* and *Constantinople*. These latter, continues this Author, were, as well as the former, called *Archiatri*, from the City in which they practis'd, just as if one should say *Principis Urbis Medici*, that is, the Physicians of the principal City, or of the City in which the Prince resides. The *Archiatri* of this last Sort were fourteen in Number, one for each of the Districts into which *Rome* was then divided. And as they had Salaries allowed them by the Public, and enjoyed several other Privileges and Immunities, which could not be claimed by other Subjects, they were obliged to visit all sick Persons without Distinction, gratis; for the original End and Design of their Establishment was to guard against the Losses, which the poorer Sort of the Roman Subjects might possibly sustain for want of Physicians.

All we know concerning the Salaries, the Privileges, and the Method of electing the *Archiatri*, is drawn from the several Laws relating to these Matters enacted by different Emperors, and from the Works of some Authors who lived at that Time; first then, from these Sources we find, that these *Archiatri* had Salaries either from the Prince or the People; and, that in Consequence of these Salaries, they were obliged to visit all Patients, whether rich or poor, without demanding any Fees, except what the Patient's Generosity should prompt him to bestow after his Cure was completed. Secondly, from these Laws it appears, that several Privileges were annexed to the Office of *Archiater*; that these Physicians themselves, their Wives and Children, were exempted from all the Taxes and Burdens of the Roman State; that such of them as resided in the Provinces, were neither obliged to quarter Soldiers, nor any other Persons whatever; that they could not be dragged to the Bar, nor obliged to make a personal Appearance before the Judge; that they could not be taken Prisoners; and that none durst insult them without incurring the strictest and severest Penalties. The Law indeed which ordains this, seems to extend these Privileges, and render them common to all the Physicians of the Roman State, or at least to some who were not among the Number of the *Archiatri*. But there is also another Law restraining these Privileges solely to the *Archiatri* of the Palace, and those of the City of *Rome*. Thirdly, from these Laws we may also gather, that the *Archiatri* served both the Emperors and the Public; and that those of them who were discharg'd, either on account of their having bore the Office during the allotted Time, or for some other Reason, were call'd *Exarchiatri*, or *Ex Archiatri*. Finally from these Laws, and the Writings of the Authors who liv'd in these Days, it appears, that there was a College of *Archiatri* compos'd of a certain Number of Physicians, who took their respective Places, according to the Dates of their Admission; so that when any of their Number died, the Person chosen to succeed him was lowest of all; and that this College judg'd of the Capacity of Candidates, and chose or reject'd them accordingly; but that the Emperor confirm'd them after they were elected, or even nominated and propos'd them before, to the *Archiatri*; who afterwards examin'd them, and admitted them into their Number, if their Merit gave them a Title to that Honour.

The *Archiatri* of the Palace were honour'd with a Title somewhat equivalent to our Word *Earl*. This Earldom, *Comitiva*, as the Romans call'd it, was distinguish'd into the *first* and *second* Ranks, both which were obtain'd by the *Archiatri* of the Palace. Those who obtain'd the *Comitiva* of the *first* Order, went equal with *Dukes* and *Vicars*; and, it seems, these Dignities were at first common to several *Archiatri*, or that there were several of these Earls at one and the same time. But, under the Gothic Kings, a Revolution happen'd in this Body of Men; and instead of several *Archiatri*, there was one establish'd, who had a certain Jurisdiction not only over the rest, but also over the other Physicians of the State. The Power of this *Earl* of the *Archiatri* was very extensive, as we may learn from a Clause of the Formula of his Instalment, which runs thus: "Henceforth we confer upon you the Dignity of *Earl* of the *Archiatri*, that you alone may shine distinguish'd among the venerable

"Guardians



"Guardians of Health; and that all who shall have any Differences or Disputes, relating to Things of a medicinal Nature, may submit to your Arbitration, and acquiesce in your Decision: You shall be the universal *Arbiter* of the sacred Art of Physic, and the Judge of all those Controversies which were formerly decided by the Caprice of private Physicians. You will, in some Sense, cure the Sick, inasmuch as you will put an End to those Contests which embroil Physic, and consequently prove injurious to them: It is a remarkable Piece of Honour, that Men of Learning and Skill should pay a sincere Deference to your Decisions; and that you should have so rich a Tribute of Veneration from those, who are themselves venerable in the Eyes of the rest of Mankind." The same *Formula* subjoins, that this Head or Chief of the Physicians was particularly oblig'd to take care of the Emperor's Health; and that, for this very Reason, he had free Access to his Person at all Times. See *Cassiodori Formul. Archiatr. Le Clerc*.

I can't, upon this Occasion, forbear instituting the Comparison between the *Pope* and this Head of the *Archiatr*; only I look upon the latter as the more noxious *Animal* of the two: For the Infallibility and decisive Power of the former generally exert themselves upon Modes of Worship, and controverted Points of Divinity; things in which the true and genuine Happiness of Mankind is by no means interested: Whereas the irrevocable Decisions of the latter might tie the Practitioners of Physic down to Theories and Practices, which might depopulate Cities, lay waste Nations, and, in Process of Time, render the Earth itself a Desert. Thus, for Instance, if this Pope in Physic should decree, that every Physician should believe, that Fevers are caused by an *Inflammation of the Animal Spirits*, or from something deleterious residing amongst them; and, in consequence of this Doctrine, should ordain, that, in such Cases, Patients should be deny'd all cooling and diluting Liquors; and should be kept to a constant Use of heating Medicines, in order to expel this *imaginary Poison*, or drive out this *inflammatory Matter* by the Pores of the Skin; in this Case, Physic could no longer be esteem'd a salutary Art, since more must necessarily perish by such intended Means of Relief, than by all the Distempers which are naturally produced in the World.

This Word *Archiatr* has made such a Noise in Physic, that if I was to give an Account of every thing that has been said relating to it, I should present the World with several Volumes of critical, classical, and historical Learning: But that not being my Design, I hope I have fix'd the Meaning of the Word *Archiatr*, and given as satisfactory an Account of the *Archiatr* as my intended Brevity would permit.

ARCHIDOXIA. The Title of a Chymical Work of *Paracelsus*, which *Libavius* explains *magical. Castellus*.

ARCHIGENES. A celebrated Physician among the Antients.

We are inform'd by *Suidas*, that *Archigenes* lived under the Emperor *Trajan*, practised Physic at *Rome*, and died in the sixty-third Year of his Age, after having written a great deal on physical and medicinal Subjects. The same Author adds, that he was a Native of *Apamea* in *Syria*, and that his Father's Name was *Philip*; which may possibly have laid a Foundation for the Mistake of *Wolfgangus Justus*, who makes *Archigenes* Physician to *Philip* King of *Syria*.

But *Archigenes* must have not only lived under, but also survived *Adrian*, if it was he who directed that Emperor to a certain Place under his Breast, as most proper to be wounded, in order to procure a speedy Death. *Dion Cassius*, indeed, ascribes this Affair to one *Hermogenes*; but *Mercurialis* is of Opinion, that the Name ought to be read *Archigenes*, and not *Hermogenes*. However, I don't know but *Mercurialis* may be mistaken in this; for we read of one *Hermogenes*, a Follower of *Erasistratus*, and there is nothing to hinder his living in the Days of *Adrian*, since the Sect or School of *Erasistratus* was in Being till a great while after that Time. It also appears, that *Galen* speaks of this same *Hermogenes*, as of one who had not lived a great while before him. Now *Galen* was born under the Emperor *Adrian*. As for that other *Hermogenes*, against whom *Lucilius* made this Epigram, he must have been considerably older.

Ἡρμογενὴν τὴν ἰατρὸν ἰδὼν Διδραντὸς ἐν ὕπνῳ,  
Οὐκέτ' ἀντιγέρθη, καὶ περιάμματα φέρον.

That is:

*Diophantes, happening to see the Physician Hermogenes in a DREAM, never awaked after; even tho' he wore a PRESERVATIVE about him.*

*Martial*, who imitated this Epigram, attributes the same destructive Influence to another Physician, whom he calls *Hermocrates*; but this, as well as the former Name, may possibly be fictitious. *Martial's* Performance, tho' far short of the Spirit and Purgency of that of *Lucilius*, has nevertheless enough of the Epigram about it to deserve the Name of a masterly Production. It runs thus:

*Lotus nobiscum est hilaris, cœnavit & idem;  
Inventus mane est mortuus Andragoras.  
Tam subitæ mortis causam, Faustine, requiris?  
In somnis medicum viderat Hermocratem.*

*Andragoras supp'd in good Health; but next Morning was found dead. If, Faustine, you should ask the Cause of so sudden a Death, I tell you, he had the Misfortune to see Hermocrates in a Dream.*

But to return to *Archigenes*; he must certainly be the Physician meant by *Juvenal*, *Sat. 6. l. 236.* in these Words:

----- *Tunc corpore sano  
Advocat Archigenem, onerosaq; pallia jactat  
Quot Themison Egras. -----*

From which Passage the Scholiast observes, that *Archigenes* was a very noted Physician of these Days.

And again, *Sat. 13. l. 98.*

*Nec dubitet Ladas, si non eget Anticyra, nec  
Archigene. -----*

And in *Sat. 14. l. 52.*

*Ocyus Archigenem quære, atq; eme quod Mithridates  
Composuit. -----*

Now as *Juvenal* lived till the twelfth Year of *Adrian's* Reign, he must have been contemporary with *Archigenes*; and the Manner in which he speaks of him, imports, that he was a Physician of great Employment.

But *Juvenal* is not the only Author who establishes the Character and Reputation of *Archigenes*: He has *Galen* also on his Side, whose Suffrage is of the more Importance, as he himself was a Physician, and not very profuse of his Encomiums on People who differ'd from his own Sentiments. "*Archigenes*," says he, [*De Locis Affect. Lib. 2. Cap. 6.*] has taught as well, and with as much Care, as any other, all that relates to the Art of Physic; and this renders all his Writings, which are very numerous, justly valuable. But notwithstanding this, he is not, in every respect, free from Errors; and as he did not hesitate to censure those who went before him, even tho' he received a great deal of Advantage by their Labours; so we hope none will take it amiss, if we, who come after him, treat him as he treated others. It is very difficult, continues *Galen*, for Men not to err on certain Occasions, either by being entirely ignorant of certain things, or by not judging of them as we ought; or by writing sometimes in a too negligent and less accurate manner."

It appears somewhat contradictory, that *Archigenes* should be rank'd among the *Elective*, and among the *Pneumatic* Sect, at one and the same time; but to this I answer, that if *Archigenes* is rank'd among the *Pneumatics*, or if he embraces the Sentiments of *Athenæus*, this does not hinder him from being at Liberty to chuse what he thought best, from among the other Sects. And tho' he, perhaps, acknowledged the same Causes of Diseases with the *Dogmatic* and *Pneumatic* Sects, yet 'tis possible, that to these Causes he may have join'd that which the *Pneumatics* thought of the greatest Importance, which is their *Spirit*; and might, for this Reason, have been inroll'd in the *Pneumatic* Sect. However this be, the Author of the Introduction places *Archigenes* not only in the *Elective*, but also in the *Pneumatic* Sect; and *Galen* himself, who no-where speaks of the former of these Sects, observes, that *Archigenes* was of the same Sect with *Athenæus*, who was a *Pneumatic*. *Le Clerc Histoire de la Médecine*.

ARCHIGENI MORBI. Acute Diseases, so call'd from ἀρχή, the Chief, and γίνομαι, to be; because they hold the principal Rank among Diseases. *Blancard*.

ARCHIMAGIA. Chymistry, which, being the Art of making Gold and Silver, deserves this high Title. *Castellus*.

ARCHIMEDIS TRISPASTUM. The same as *APELLIDIS TRISPASTUM*, which see.

ARCHIMIA differs from *Alchimia*, being, in particular, the Art of changing imperfect Metals into those which are more perfect. *Castellus*.

ARCHOS, ἀρχή. The Anus. It is also taken for the *Intestinum Rectum*, as if it were the primary or chief Intestine. Thus, *Aph. 58. Lib. 5. & Lib. de Fistulis*, ἀρχὸς πλεγμαίνων, means an Inflammation of the *Intestinum Rectum*, according to that Exposition of *Galen*, ἀρχὸν μὲν ἢν λίγων τὸ ὅλον ἀπεικονίζον, "calling the whole *Intestinum Rectum* by the Name of "*Archos*." And, *Lib. de Art.* by ἀρχὴ τὸ χαλαρὸν, "the Laxity of the *Rectum*," is understood the lax Part, which adheres to the *O. Sacrum*, excluding the Constrictory Muscle call'd the *Sphincter*; and the same is meant, in *Lib. de Moch.* by ἀρχὴ τὸ ἐγκλισμῶν, "the inclining Part of the *Rectum*."

ARCION,



ARCION, ἀρκιον. The Burdock. See BARDANA.

ARCOS. Burnt Copper. *Rulandus*.

ARCTATIO, ἄρκτιον or συμπίλησις, from ἄρκτιον or συμπελάειν, of πέλας, near. A Streightness; in particular, it is apply'd to the Intestines constipated from an Inflammation, and to a preternatural Streightness of the *Muliebre Pudendum*, or *Uterus*. It is also call'd *Arctitudo*.

*Arctata Pars*, in *Scribonius Largus*, No. 206. is an Expression to signify the Part compress'd or clos'd by a Fibula.

ARCTION, ἀρκιον. Woolly-headed Burdock. See BARDANA.

ARCTOS. The Constellation call'd the URSA MAJOR.

ARCTOSCORDON, ἀρκίσκορον, from ἀρκίον, a Bear, and σκόρον, Garlick. A sort of Garlick call'd Bear-garlick.

ARCTOSTAPHYLOS, ἀρκιστάφυλον, from ἀρκίον, and σταφυλή, a Grape. *Uva Urvi*, or *Spanish Whortles*. See VACCINIUM.

ARCTURUS, ἀρκτύρος, from ἀρκίον, and ἔρως, a Keeper; in *Erotian* upon *Hippocrates* is expounded, "Ὁν ἴμεν Ἀρκτορύλλακα περὶ ἀγρορεύσον, ἔχει γὰρ οἱ φύλακες καλοῦνται ἐστὶ δὲ ἔτος λαμπρὸς ἀστὴρ ἐν τῇ ζώνῃ τῇ βοώτι καί μενθε." "Which some call *Arctophylax*, (the Keeper of the Bear) for Keepers are call'd *Uri*: It is a bright Star in *Bootes's Belt*." *Hippocr. Lib. 1. Epidem.* Περί ἀρκτοῦρος ἐν ἰγνῶν, καὶ ἐπ' ἀρκτύρου, &c. "A little before, and at the (Heliacal) Rising of *Arcturus*," &c.

Others derive the Word from ἀρκίον, and ἔρως, a Tail; and make *Arcturus* a Star in the Tail of the great Bear, of which *Aratus*, as translated by *Tully*:

*Huic autem subter Præcordia fixa videtur  
Stella micans radiis Arcturus nomine claro.*

*Arcturus* rises about our second of September; and sets October the twenty-ninth, as mark'd in the Calendar.

ARCTURUS *Creticus Belli*. See BLATTARIA.

ARCUALIA OSSA, according to some, are the Bones of the *Sinciput*; others take them for the Temple-bones.

*Arcualis Sutura* is the same as the *Coronalis*. See SUTURA.

ARCUATIO, according to some, is a Gibbosity of the Fore-parts, with a Curvation of the Bones of the *Sternum*. *Castellus*.

ARCUATUS MORBUS. The same as *Arquatus Morbus*, or *ICTERUS*, which see.

ARCULÆ, κοιλίδες. The Caverns in which the Eyes are situated. *Ruf. Ephes.*

ARDABAR. A Species of *Arum*. See ARUM.

ARDAS, ARDALOS, ἀρδας, ἀρδαλον, according to *Galen* and *Erotian*, are the same as ῥύπος and μολυσμας; that is, Sordes and Filth.

ARDEA, Offic. Schrod. 5. 315. *Ardea cinerea*, Mer. Pin. 181. *Pella* & *Ardea*, Bellon. des Oyse, 190. *Ardea cinerea major*, Raii Synop. A. 98. Aldrov. Ornith. 3. 377. Charlt. Exer. 109. Jonf. de Avib. 103. *Ardea pulla sive cinerea*, Gefn. de Avib. 186. *Ardea cinerea sive pulla*, Raii Ornith. 277. Will. Ornith. 203. THE HERON.

This Bird is too well known to require a Description. The Fat is recommended for asswaging the Pains of the Gout; for taking off Specks from the Eye, and clearing the Sight; and for curing Deafness, if put into the Ear. *Dale*.

The young Herons are sometimes used as Food; but on account of their Aliment, which is Fish, their Salts must be highly exalted, and their Flesh rank.

ARDEA STELLARIS.

*Asterias*, Offic. *Ardea Stellaris*, Mer. Pin. 181. Will. Ornith. 207. Raii Ornith. 282. Ejusd. Synop. A. 100. Charlt. Exer. 110. *Ardea stellaris major*, Aldrov. Ornith. 3. 408. Gefn. de Avib. 193. Jonf. de Avib. 104. *Butor*, Bellon. des Oyse. 192. THE BITTERN, or MIRE-DRUM.

The Skin and Feathers of this Bird, if burnt, are said to stop Hæmorrhages.

These Birds are sometimes eaten; but the Flesh is very rank, and their Salts must be much exalted on account of their Food.

ARDENS FEBRIS, from *ardeo*, to burn. A burning Fever. The same as CAUSUS, which see.

ARDENTIA, are Things unfit to be eaten or drank, being of a Nature obnoxious to Combustion, as Carabe (*Amber*), Turpentine, Jet, and the like. *Rulandus*.

ARDESIA. *Hardefia vulgaris*, sive *Ardesia*, Ind. Med. 57. *Lapides scissiles*, & *crustosi*, Mer. Pin. 212. SLATES.

I do not know why *Dale* has inserted these among the *Materia Medica*, as, he says, he finds no Virtues attributed to them.

ARDOR URINÆ. See DYSURIA.

ARE-ALU. A sort of Indian Fig. See FIGUS.

AREA, according to *Rulandus*, is the Mass dug from the Mines, or the Place whence it is digg'd. In Medicine it is a Species of ALOPECIA, which see.

ARECA. THE INDIAN NUT, Offic. *Areca sive Fausel*, THE DRUNKEN DATE-TREE, Ger. *Sive Fausel avellana Indiana versicolor*, THE DISCOLOUR'D SMALL INDIAN NUT, Park.

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This is the Fruit of a kind of Palm-tree, that grows in the *East-Indies*. The outward Coat, or Covering, is about the Bigness and Shape of a Pullet's Egg, and is made up of numerous fine Threads or Filaments, running lengthways from the Stalk to the Head; under which is contain'd the Fruit or Nut, of a brown Colour on the Outside, in Shape like a Nutmeg at one End, but flattish at the other, with a kind of Navel towards one Side; within, it is white, and marbled like a Nutmeg, with purplish Veins of very little Taste.

This Fruit is a kind of Cocoa-nut, containing a woody Kernel, inclosed by two different Substances. The *Indians* chew the *Areca*, roll'd up in a Bitel-leaf, to help Digestion, and to strengthen the Gums, as *Kæmpfer* relates. When fresh, it is a little astringent; and of this Fruit the Extract is made, which in our Shops is call'd *Terra Japonica*. To this Extract they sometimes join that of another Plant named *Lycium*, and also calcin'd Shells. *Geoffroy*. See CATECHU.

AREFACTIO, ξηρώσις. An Exsiccation, or Drying. It is a way of preparing such Medicines as are redundant in Moisture, in order to their being reduced to a Powder. *Castellus*.

AREMAROS, Cinnabar. *Rulandus*.

ARENA MARIS, Offic. *Arena marina*, Kentm. 57. *Arena litoralis*, Mer. Pin. 211. Matth. 1390. SEA-SAND.

Sea-sand dries up the redundant Moisture in Hydropic Constitutions, if the Patient lies cover'd with it as far as the Head. It is sometimes heated, and applied by way of dry Fomentation, instead of Salt or Millet. *Dioscorides*, Lib. 5. Cap. 167.

ARENAMEN, ARENARMEI, Bole Armoniac. *Ruland. Johnson*.

ARENARIA. A Species of *Coronopus*, so call'd, because it delights in sandy Places. *Blancard*.

ARENATIO, or SABURRATIO, is casting Plenty of very hot Sea-sand, or, for want thereof, of River-sand, upon the Bodies of the Patients. *Castellus*.

AREOLA is the Circle surrounding the Nipple. See MAMMÆ.

ARES. A Word coin'd by *Paracelsus*, by which he would have us understand the secret Disposer of Nature in the three Principles, whereof every thing consists, who gives it a Form, Species, and Substance, peculiar to it, whereby it is distinguish'd from others. We may here observe, say the Alchymists, the Difference between these three Things, which the Divinity has constituted in Nature. The *Iliaster* is a Substance of the most general Kind, consisting in the first universal Matter of all Things: The *Archeus*, the first Disposer of Nature, distributes this Matter into three Kinds, which are Sulphur, Mercury, and Salt, and thence reduces all Things into their Species. At last comes the *Ares*, another Disposer of Nature, and produces Forms to every Kind, and distributes Species into Individuals. *Johnson*.

*Ares* is distinguish'd by *Paracelsus* into the *Archeic*, which is natural, and the *Chymic*, which is artificial. Hither also may be refer'd the *Melofmicum*, the Principle of Transmutation, call'd also the *Salamandrine Essence*, such as is ascrib'd to the Philosopher's Stone. *Paracels. de Vit. Long. Lib. 3. Cap. 12. and Lib. 4. Cap. 6.*

ARESTA BOVIS. The same as ANONIS, which see.

ARETÆUS. *Le Clerc*, an Author of profound Learning, and singular Penetration, has set the Sentiments and Character of *Aretæus* in a very just Light.

*Aretæus* is an Author of so uncommon a Character and Reputation, that we should do a manifest Injury both to him and to the World, if, on this Occasion, we should neglect to inquire into the Sect to which he belong'd, and the Time at which he lived; and this Task will at once prove curious and useful, since, as we go along, we shall have Occasion to mention some Circumstances, that place the Sentiments and Practice of *Aretæus* in a clearer Light, than possibly most People are able to view them in without this Assistance.

As to the Sect, then, to which this Physician belonged, there is not perhaps a single Point in the whole History of Physic, that has been either more mistaken, or less adverted to; for *Castellanus*, who writes a small Abridgment of the Lives of the ancient Physicians, expressly affirms, that *Aretæus* was attached to no particular Sect whatever. Something more accurate and explicit might have been expected from *Menischi*, a Physician of *Ausburg*, who wrote Commentaries upon *Aretæus*; but he declares himself of the same Opinion with *Castellanus*, and all along discovers such a Fund of Prejudice and Partiality, that one would be tempted to think he had written his Commentaries with no other View than to misrepresent *Aretæus*, and make him say things he never so much as thought of. Instead of explaining the difficult Passages of his Author, he endeavours to supply the Defects of the Text in such a manner as to speak his own or *Galen's* Sentiments, and not those of *Aretæus*. And, what is still more surprising, *Hieronymus Mercurialis*, who was so thoroughly acquainted with the Writings of the ancient Physicians, and who had undoubtedly read *Aretæus*, as appears from several Passages in his Works, forgets to take Notice of the

Sect



seet to which this Physician belonged. But notwithstanding the Uncertainty this Point has hitherto laboured under, I shall venture to pronounce, that *Aretæus* was an Abettor of the Pneumatic Seet; and, my Reasons for thinking so, are these:

'Tis well known, that the Pneumatic Seet established a fifth Element, which they called *Spirit*, the Changes and Alterations of which, according to them, laid the Foundations of various Diseases. Now 'tis plain, that *Aretæus* means this *same Spirit*, when he says, that "there are two Sorts of Quinsseys, " the one caused by an Inflammation of the Instruments of " Respiration, of the Amygdalæ, Epiglottis, Pharynx, Uvula, " and superior Part of the Aspera Arteria; and the other proceeding from a Disorder of the *Spirit*, which is itself the immediate Cause of this Distemper. In the latter of these " Quinsseys, adds our Author, the Instruments of Respiration " are so far from being distended, that they are rather more " contracted than in their natural State; and yet the Suffocation and Difficulty of Breathing are far greater than in the " former; for which Reason, those who labour under it, imagine that they have a latent Inflammation in the very Middle of their Lungs, and in the Parts adjacent to their Heart. " As for my share, continues he, I am of Opinion, that it is " the Spirit alone which is affected, and which by an unhappy " Change is become very hot and dry, but that there is no " Phlegmon or Inflammation in any Part whatever." *Aretæus* confirms his Opinion, by an Example drawn from the Exhalations which arise from the *Charonian Pits*, which in a Moment suffocate those who are exposed to them, though they should happen to be in a State of perfect Health immediately before. He also confirms it by an Instance drawn from the Breath of mad Dogs, which, as he affirms, kills those who receive it, though they have not been bit by the Dogs themselves. From these Examples he concludes, " That a Change, " with regard to Respiration, may be produced by internal " Causes, which bear an Analogy and Resemblance to such as " are external; that, in like manner, there are sometimes Humours in our Bodies, which partake of the Nature of Poisons, as much as external Substances which come under that Denomination; and that we may observe natural Distempers accompanied with the same Symptoms as those produced by Poisons; and Patients vomit the same kind of Matter in Fevers, which others do upon taking Poisons: For which Reason, continues our Author, we ought not to be surprised, if the *Athenians*, who were ignorant of the Analogy between the Effects of certain Poisons, and those of certain pestilential Diseases, imagined that they were afflicted with Distempers of that Nature, because the Inhabitants of the *Peloponnesus*, with whom they were at War, had poisoned the Wells of the *Piræus*."

From these Passages we may infer, that by the Word *Spirit*, *Aretæus* meant no more than the *Matter of Respiration*; and he seems to confirm that Point in another Passage, where he says, that the *Coldness and Humidity of the Spirit are the Cause of an Asthma*: But it is not in these Cases alone, according to *Aretæus*, that the *Spirit* contributes to the Production of Diseases; for the *Iliac Passion* is, in his Opinion, produced by a cold and slow *Spirit*, which cannot easily discharge itself either upwards or downwards. In a Scirrhus of the Spleen, the Belly, says he, is filled with a thick and dark *Spirit*, which seems to be humid, though it is not really so. In a Dropsy called a *Tympanites*, our Author acknowledges a *Spirit* which does not change its Situation, though the Part which includes it, moves upwards and downwards; and adds, that if this Spirit is changed into Water or Vapour, the *Tympanites* is changed into an *Ascites*. He asserts in another Passage, that the Smell or Vapour of the Poppy thickens the dry and subtle *Spirit* of Phrenetic Patients. In short, *Aretæus* insists so much on the *Spirit* established as a fifth Element by the Pneumatics, that we have no Reason to doubt of his being a professed Abettor of that Seet.

And even though this should be denied, a great many other Circumstances concur to prove, that *Aretæus* was a real Pneumatic; for 'tis past all Dispute, that the Physicians of that Seet asserted, that Fire, Air, Earth, and Water, were not real Elements; but that the Name of Element rather belonged to the Qualities of which these Bodies were possessed, or to Heat, Cold, Dryness, and Humidity: Now, that *Aretæus* was of the same Sentiment, is plain from a great Number of Passages in his Works.

It must be own'd, that in some Cases the Sentiments of *Aretæus* coincided with those of the Methodic Seet; for though other Physicians acknowledged a Difference between acute and chronical Disorders, yet those of the Methodic Seet first wrote of them separately and apart: Now, that *Aretæus* followed them in this Particular, is plain from his having written four Books upon acute, and as many upon chronical Distempers.

This is not the only Point in which he seems to follow them; for, in Imitation of them, he gives very particular Directions with regard to the Chamber in which Patients, labouring under certain Disorders, should be lodged. He likewise specifies the

Air the Patient ought to breathe, the Bed on which he should lie, and the Manner in which he is to be covered. He also imitates them in recommending all the different Exercises they used to prescribe towards the Termination of Diseases, such as Walking, the different Manners of Gestation, the Exercise of the Voice in Vociferation, or talking loud, and the throwing of the Coit, or other weighty Machines, used for the same Purpose. He also orders a certain Gesticulation of the Hands, which he calls *Chironomia*. Now all these are the professed Tenets of the Methodic Seet. *Aretæus* indeed in one Instance carries the Point of Exercise farther, and advises those who are subject to Vertigos to behave as Prize-fighters do, that is, to beat each other soundly with their Fists. 'Tis no easy matter to comprehend his Meaning by this Advice. *Mercurialis* supposes, that it is a Fault in the Text; which is not improbable, since we can scarce suppose such a Treatment proper for vertiginous People, who are incommoded and rendered worse by the least Noise or Motion. Besides, *Aretæus* had this in common with the Methodic Seet, that he ascribed a great deal to Topics, or external Applications, such as Fomentations, Cataplasms, and Unctions.

Tho' *Aretæus* agreed with the Methodic Seet in the above-mentioned Particulars, yet on other Occasions he argued from quite different Principles, and prescribed Remedies that were openly disapproved of by *Theffalus* and *Soranus*, who were avowed Favourers of the Methodic Seet: For Instance, he orders Purgations, and the Composition called *Hiera*, was what he most used, and most confided in. He also on some Occasions prescribed simple Purgatives, such as the Fecula of wild Cucumbers, Bastard Saffron, and Hellebore. He no less remarkably opposed the Methodic Seet, in venturing on certain Occasions to prescribe acrid and irritating Clysters.

He also used Castor on several Occasions, which the Methodic Seet never did; and, in direct Opposition to them, prescribed Narcotic Medicines, such as Opium and the Poppy. But his Practice with regard to the Use of these was not rash and unguarded, as appears from the important Caution he gives in these Words: " 'Tis sometimes necessary, says he, to administer *fœmniferous Medicines* to such as labour under Peripneumonies, or are afflicted with long Watchings, lest they should become furious, and in order to mitigate and allay their Disorder and Inquietude. But we must beware of using Medicines of this Nature, when the Patients are in Danger of being suffocated with a Defluxion of Humours, or are thought to be on the very Verge of Death, because in these Cases the Physician runs a Risque of being censured for killing the Patient."

Our Author's Practice, with regard to letting Blood, was also very different from that of the Methodic Seet; for in Apoplexies he observed, that taking away too much Blood killed the Patient, and that taking too small a Quantity produced no Effect at all: He was nevertheless of Opinion, that it was most proper to take little at a time, and to repeat the Operation frequently. In a Quinsy, he used Venesection, and allowed the Blood to flow till the Patient was ready to faint away. In Vomitings of Blood proceeding from whatever Cause, he universally recommended Venesection: " For, says he, whether this Discharge of Blood is the Consequence of a Vessel's being broken, or corroded by the acrid Quality of the Blood, Venesection is still very useful; and if this Accident proceeds from the Thinness of the Vessels, Phlebotomy prevents their being burst, in Consequence of their being over-full. We must also take care, continues he, not to allow the Orifice made in the Vein of the Arm to agglutinate and close up, that we may the more commodiously take away a little Blood at different times for several Days running; a small Quantity must be taken at a time; but the Operation must be repeated the same Day, the following, the third, and the fourth, if the Patient's Strength is not too much exhausted." Some Physicians, in the Days of *Aretæus*, used in Vomitings of Blood to open the Veins of the Hand; but he entirely disapproves of that Practice: " For, says he, why would you rather open a Vein near the Fingers than in the Place where the Elbow bends, since, in the latter, the Vein is larger, and better disposed for an Evacuation of the Blood?" In that Species of continued burning Fevers, called *Causus*, from a Greek Word which signifies *to burn*, our Author also orders to take away a great deal of Blood, though at different times, and during several Days. We must likewise observe, that he imagined Fevers of this Kind to proceed from a Phlegmon or Inflammation, properly so called, of the Trunk of the *Vena Cava*, or that of the great Artery. But what is surprising is, that the People of his Age imagined, that Patients labouring under that Species of Fever called *Causus* predicted future Events; and that they talked or carried on Correspondences with the Dead. *Aretæus* seems to have been convinced of this himself, since he endeavours to account for it by saying, that the Heat of the Fever having consumed the thicker and more gross Parts of the Humours, the Soul is by that means render'd more pure, and enabled to see things it did not formerly perceive.



ceive. This Opinion seems to have been originally broached by some weak and superstitious Trifler, who listened to the incoherent Reveries of Patients of this Kind, and endeavoured to find out a Sense and Meaning in them. In acute Pains, and Inflammations of the Kidneys caused by the Stone, *Arctæus* prescribed the taking away a great Quantity of Blood, in order to relax the Passage in which the Stone was lodged, and allay the Inflammation of the Parts, which, he said, *were compressed or bound up with a kind of Ligature, which could not be resolved by any other Means than by evacuating the Veins.*

*Arctæus* did not confine Venesection to the Arm alone; for he ordered Bleeding in the Forehead, for such as laboured under violent Head-achs, and took about nine Ounces of Blood from that Part, having first blooded the Patient in the Arms.

For the same Disorder he prescribed Bleeding in the Veins, that are situated in the Inside of the Nose, by means of certain Instruments, one of which he calls *καταδύων*, and the other *σφύρα*. If none of those Instruments can be had, he orders the Barrel of a Goose's Quill, cut at one End like the Teeth of a Saw, to be passed into the Nostrils almost as far as the *Os Ethmoides*, and to be moved in such a manner with the Hands, as to procure a Discharge of Blood. In an *Elephantiasis*, of which he gives a very exact Description, he orders Venesection in both Arms, and both Feet, in one and the same Day.

*Arctæus* in his Practice made use of Vomits, for which Purpose he sometimes recommends the bulbous Part of a Species of *Narcissus*; but confided more in the Efficacy of *White Hellebore*, of which he talks in this Strain: "*White Hellebore*, says he, not only excites Vomiting, but is also the most efficacious and powerful of all purgative Medicines, not with regard to the Quantity and Variety of the Excrements of which it occasions a Discharge; for in the Disease called *Cholera*, the Excrements come away in the same manner: Neither is its Efficacy owing to the Efforts it occasions, or the Violence with which it excites Vomiting, since Nauseas, and Sailing on the Sea, operate with still greater Violence; but its Excellence is owing to a particular Virtue which cannot be sufficiently admired, since, even in the Cases where it purges very little, it nevertheless cures the Patients who use it. Besides, in Diseases of long standing, when other Medicines have proved too weak, it is the only one which operates with Effect. In a word, white Hellebore resembles Fire; for what Fire produces by burning or inflaming, white Hellebore produces more effectually, by penetrating into all the Parts of the human Body. It renders Respiration easy to those who breathe with Difficulty; it restores a fresh Colour to those who were pale, and Fatness to those who were lean and extenuated."

The Manner in which *Arctæus* us'd *Cantharides*, ought not to be forgot. The Abettors of the Methodic Sect, and even most of the antient Physicians used Medicines, to which they gave the Name of *Metasmyractical*, in order to draw Humours from the Centre to the Circumference of the Body; for this Purpose they employ'd *Mustard*, or the Plant called the *deadly Carrot*. This was also a Part of *Arctæus's* Practice; but he likewise us'd *Cantharides*, in order to attract more powerfully, and raise Blisters on the Skin, which might be full of an acrid and hot Water, and might, in due time, discharge themselves, to the no small Relief of the Patient. This Species of Remedy is in our Days call'd a *Vesicatory*; and I cannot find, that before his Time this Remedy was used by any of the Physicians, or, at least, that *Cantharides* were employ'd for that Purpose by any except *Archigenes*, who was of the same Sect with *Arctæus*, and in all Probability liv'd some time before him.

The Knowledge the Antients had of the Effects produced by *Cantharides* on the urinary Duets, was probably the Reason why they look'd upon that Insect or Fly as very venomous, and a Species of Poison, which prevented their using them as a Medicine, except on some particular Occasions. Thus, according to *Galen*, "they were mix'd with those Plaisters which were design'd for making distemper'd Nails fall off; and the Powder of *Cantharides* was used in Medicines against the Leprosy and Itch, and in the Preparations design'd for consuming and rotting the Flesh. He adds, that *Cantharides* were us'd internally, in order to provoke a Discharge of Urine; but that great Precaution, both with regard to the Quantity and Method of Preparation, was absolutely necessary, lest they should prove hurtful."

*Arctæus*, in Epilepsies, proposes Frictions of the Head with *Cantharides*; and when treating of the Head-ach, he also mentions those Remedies which excite Blisters on the Skin, tho' in that Passage he does not specify *Cantharides*. But as *Archigenes* employ'd them on these Occasions, 'tis not improbable but *Arctæus* might do the same.

*Archigenes* is by *Aetius* represented as speaking in this manner: "We use, says he, a Cataplasm, into whose Composition *Cantharides* enter, and which produces wonderful Effects, provided the little Ulcers it excites remain sufficiently long open, and run sufficiently freely. But the Bladder

"in the mean time must be guarded and defended by the Use of Milk, both internally and externally."

*Arctæus* was no less remarkable for his singular Modesty, than for the Extent of his Skill and Knowledge: Of this we have a remarkable Instance, in what he says concerning a particular Species of Dropsy, of which other Physicians have made no Mention. "There is, says he, a Species of Dropsy form'd by a great Number of Bladders full of Water, and lodg'd in the Place where the Dropsy Ascites has its Seat [that is, in the lower Belly]. Each of these Vessels is very full; and if we pierce the lower Belly with an Instrument proper for that Purpose, the first of these Bladders which occurs discharges its Contents, but afterwards contracts itself; and if we want, that more Water should be discharged, we must pass the Instrument deeper [*in order to pierce others of the Bladders*]. Some, says he, affirm, that these Bladders proceed from the Intestines; but for this I have not the Testimony of my own Eyes, and consequently can say nothing concerning it."

*Arctæus* gives also an Account of another Disease, of a no less singular and uncommon Nature. "There is, says he, a Species of Madness, in which the Patients, prompted by a Principle of Superstition, tear their Bodies, and cut their Flesh, imagining that by these means they render themselves dearer to the Gods they serve, and that these Gods exacted such Things at their Hands. This Species of Madness only takes Place with regard to this Opinion, or religious Sentiment, and the Patients are sensible enough in other respects: They are roused or restored to themselves by the Sound of the Flute, or other Amusements, or by being made drunk, or by Peoples making Remonstrances to them. This is a divine Fury, and, when the Patients are freed from it, they are of a gay and cheerful Humour, believing themselves to be initiated in the Service of the particular God under whose Influence it was pretended they were. Besides, they are pale and ghastly, and their Bodies remain for a long time weaken'd by the Wounds they have inflicted on themselves."

As this is not a proper Occasion for entering upon the Anatomy of *Arctæus*, I shall only take Notice of one Instance of his Conduct in this particular, which is, that he generally begins his Chapters by a short Anatomical Description of the Parts whose Disorders he intends to treat of in the Sequel of the Chapter.

Thus it appears, that *Arctæus* was a very exact and skilful Practitioner, and his Remedies powerful and well-chosen, tho' at the same time it must be own'd, that his Reasoning on Points of Theory was sometimes none of the most conclusive: However, as it does not appear, that it had any great Influence on his Practice, his Success, as a Physician, was not on that account the less considerable.

It now remains, that we fix the particular Time at which *Arctæus* liv'd; a Point which no one has hitherto clear'd up in a satisfactory manner. Some Authors will have him to be after *Galen*, and others will have him to be much more antient. The Opinion of the former is supported on this, that *Galen* does not quote *Arctæus*. But besides this Circumstance of our not having all the Works of *Galen*, it may be answer'd, That it is not possible he should quote all the Physicians who liv'd before him. It was sufficient, that he mention'd the principal Men of each Sect, and spoke, for Instance, of *Athenæus* and *Archigenes*, who were the first and most celebrated of the Pneumatic Sect: Besides, *Galen* might have possibly not cited *Arctæus*, because they might have both liv'd at one and the same Time; so that the Argument drawn from *Galen's* Silence, with regard to *Arctæus*, proves nothing either one way or the other.

*Vossius*, who is among the Number of those who believe *Arctæus* much more antient, supports his Conjecture upon this Circumstance alone, That this Physician wrote in the *Ionian Dialect*, which, according to that learned Critic, was in Disuse as well as the *Doric*, long before the *Cæsars*; these two Dialects being never us'd, except when *Greece* flourish'd. But in this last Assertion, *Vossius* is mistaken, as Mr. *Menage* [*in Amœnitatibus Juris*] proves by one of the Books of *Arrian*, intitled *Indica*, which is written in the *Ionian Dialect*, and by two other Books written in the same Dialect; the one by an Author call'd *Cephalio* or *Cephale*, who liv'd under *Adrian* as well as *Arrian*, and who is quoted by *Suidas*; the other by one *Dionysius Milesius*, contemporary with *Philostratus*, who liv'd under *Severus*, and who is also quoted by *Suidas*.

These are Facts which cannot be contradicted; and besides, we need only look into *Arctæus* himself, to be convinced, that he is not so antient. This, in all Probability, *Vossius* had not done with that Leisure and Attention he ought to have us'd on such an Occasion. If he had, he would have seen, that this Physician, far from living before the *Cæsars*, could not have liv'd at soonest till under *Nero*. To be convinced of this, he had no more to do than cast his Eyes upon those Passages, in which *Arctæus* [*De Curat. Diuturnor. Lib. 1. Cap. 5. & ibid. Lib. 2. Cap. 5.*] talks of the Antidote compos'd of *Vipers*; since 'tis well known, that this Antidote is the Invention of *Andromachus* a Physician of *Nero's*. *Arctæus*, in the above-

cited



cited Passages, also makes mention of the *Antidote of Mithridates*, by which 'tis plain, that he liv'd after that King, and consequently cannot have preceded the first Emperors; which single Circumstance is of itself sufficient to destroy the Conjecture of *Vossius*. I shall not here mention the Compositions of *Philon*, *Byllinus*, and *Symphon*, which *Aretæus* likewise recommends, because the Times in which these Physicians liv'd are uncertain.

From all these Circumstances we conclude, that the precise Time in which *Aretæus* liv'd, cannot be determin'd, tho' the Knowledge we have of his Sect proves, that he could not live till after *Athenæus*, who is supposed to be contemporary with *Pliny*, who liv'd under *Vespasian*. We also know, that *Aretæus* wrote before *Paulus Ægineta* and *Aëtius*, because these two Authors quote him. But from all this we cannot infer the precise Time in which *Aretæus* liv'd, because the two last-mention'd Authors did not live till upwards of two Ages after *Pliny*: Neither can we certainly determine whether *Galen* or *Aretæus* wrote first. All we can lay hold of as certain is, that they both liv'd in the Interval between *Pliny*, and *Paulus Ægineta*, and *Aëtius*; but this Interval is so long, that we cannot pretend to come very near the precise Time. It is not impossible, as we observ'd before, but *Aretæus* and *Galen* may have been Contemporaries; and it may likewise have happen'd, that the one follow'd a great many Years after the other.

Thus far *Le Clerc*. *Wigan* concludes, that *Aretæus* liv'd after the Beginning of *Nero's* Reign, and before that of *Domitian's*.

#### EDITIONS of ARETÆUS.

*Junius Paulus Crassus* publish'd a Latin Translation of *Aretæus* in 4to. *Venetiis*, 1552.

*Jacobus Goupilus* first publish'd *Aretæus* in Greek, and added five Chapters, which were wanting in the Translation of *Crassus*. This was accurately and correctly printed by *Turnebus* at *Paris*, 1554. in 8vo.

In 1554. also, at *Paris*, the Latin Version of *Crassus* was reprinted by *G. Morelius*, and *J. Puteanus*, with Annotations, and the five Chapters which were omitted in the Version of *Crassus*, by an anonymous Author, who is suppos'd to be *Goupilus*.

In 1567. *H. Stevens* publish'd the last-mention'd Translation amongst the *Medicæ Artis Principes*.

*Petrus Perna* publish'd the Version of *Crassus*, together with the five Books which before were wanting, translated by the same *Crassus*. *Brasil*, 1581. 4to.

*Georgius Henischius* publish'd an Edition of *Aretæus* in Greek and Latin, *Augustæ Vindelicorum*, 1603.

Dr. *John Wigan* publish'd a pompous and accurate Edition of this Author, in Greek and Latin, *Fol. Oxon.* 1723.

*Menage*, *Le Clerc*, and *Wigan*, take notice of a Commentary of *Aretæus* written by Mr. *Petit*, a Physician at *Paris*; and seem to regret its not being publish'd.

It appears by *Boerhaave's* Preface to the *Leyden* Edition of *Aretæus*, that he found means to procure the Manuscript from which these Commentaries are printed in the Edition above-mentioned. It is intitled.

*Aretæi Cappadocis de Causis & Signis acutorum & diuturnorum Morborum Libri Quatuor, de curatione acutorum & diuturnorum Morborum Libri Quatuor, cum Commentariis integris Petri Petiti Medici Parisiensis, atque Clarissimi Joannis Wiganii doctis & laboriosis notis, & celeberrimi Mattairii opusculis in eundem, tandemque eruditissimi atque celebratissimi Danielis Wilhelmi Trilleri Observationibus & Emendatis. Editionem curavit Hermannus Boerhaave, Lugd. Bat.* 1735.

ARETE, ἀρετή, Strength and Firmness either of Body or Mind. Ἀρετὴ σώματος, in *Hippoc. Prorrh.* 2. is natural Strength of Body.

AREUS, the Title of a Pessary in *P. Æginet. Lib. 7. Cap. 24.* from *Antyllus*.

ARFAR, ARSAG, Arsenic. *Ruland. Johnson.*

ARGÆUS MONS. A Mountain in *Cappadocia*, producing Lithontriptic Stones. *P. Æginet. Lib. 7. Cap. 3.*

ARGEMON, ARGEMA, ἀργεμον, ἀργεμα, from ἀργός, white. *Erotian* on *Hippocrates* expounds ἀργεμον by πᾶθος τὸ πρὸς τοὺς ὀφθαλμοὺς λευκοματῶδες, ὃ ὅτε ἐκ παραπομπῆς λευκίης ἀνομάσθῃ, "a whitish Affection of the Eyes, which takes its Name from the Whiteness consequent upon it." For the same Reason it is called by the *Latins* *Albugo*. See *ALBUGO*.

ARGEMONE. See *PAPAVR.*

ARGEMONIA. The Name of an Herb in *Marcellus Empiricus*, which he says the *Greeks* call *Sarcocolla*; the same being bruised, if green, or, if dry, macerated in warm Water, that it may the more easily be bruised, and rubbed on the Eyes, soon removes Lividness and Sugillations.

ARGENTINA. The same as *POTENTILLA*, which see.

ARGENTUM, *Offic. Mer. Pin.* 208. *Fabr.* 6. *Aldrov. Mus. Metall.* 72. *Charl. Foss.* 45. *Worm.* 115. *Schrod.* 373. *Schw.* 366. *Calc. Mus.* 439. *Keptm.* 59. *Argentum*, *Luna*, *Mont. Exot.* 13. *SILVER*.

*Silver* is of much greater Use in Traffic than Medicine. It has been much the Subject of Chymical Researches, more with a Design to meliorate Metals, than forming Remedies; these, however, have by Accident been found out, during Pursuits with very different Views; so that it may be said, that the Love of Riches, amongst many bad Effects, has had, at least, one which is useful.

The Characters of Silver are, that it is,

1. The next in Weight to Lead.
2. Very simple, and discovers the least Diversity of Parts, by any ordinary Means.
3. Fix'd in the Fire, so as, when pure, scarce to lose any thing thereby. Having been kept two Months in a State of Fusion, in the Eye of a Glass Furnace, scarce one Twelfth of its Weight was found wanting. And it may even be doubted whether it had been totally purify'd first.
4. It is malleable, and ductile into very fine Wire.
5. It ignites and fuses at the same time.
6. Dissolves in Aqua-fortis.
7. It is purify'd with Lead, and sustains the same.
8. Turns to Scoria with Antimony, and becomes volatile.

It is found in many Places, and in different Ores, having almost universally a little Quantity of Gold in it.

To the Ore there usually adheres a corrosive bituminous Sulphur, which, by its rapacious Quality, renders the Silver volatile, and dissipates it in the Fire, or even converts it into glassy Scoria, to the great Loss of the Owner. This, which neither Salts nor Lead will hinder, is however prevented, by means of Mercury, by roasting the Ore, then reducing it to Powder, adding Mercury thereto, and grinding them long together, so as to unite the Silver with the Mercury; which are afterwards to be separated again by Distillation. *Boerhaave's Chymistry*, Vol. 1.

The Solution of pure Silver in Spirit of Nitre, or Aqua-fortis, from *BOERHAAVE*.

1. Take an Ounce of Silver, refin'd with ten times its Quantity of Lead, upon the Refiner's Test; melt it in a clean Crucible, and directly pour it into fair cold Water, eight Inches high, in a cylindrical Vessel: The Silver falls into it with a hissing Noise, and is scatter'd about in the Water in Grains: It is now called granulated Silver. Put an Ounce thereof into a clean urinal Glass; then take two Ounces of Aqua-fortis, put thereto a Grain of refin'd Silver; and if it be soon perfectly dissolved, so as to have the Liquor limpid, the Aqua-fortis was good, and fit for this Purpose; but if not dissolved, or the Liquor appears turbid, the Aqua-fortis is not genuine, or proper for this Purpose. The first kind of Aqua-fortis is called Proof Aqua-fortis, by the Refiners. Pour two Ounces of this Proof Aqua-fortis upon an Ounce of granulated Silver, contained in the urinal Glass; the Liquor immediately begins to move, bubbles, grows warm, fumes and hisses about the Surface of the Silver, and then becomes spontaneously hot, briskly agitated, sends out red Fumes, and dissolves the Silver, so that it perfectly disappears. A transparent colourless Liquor is thus obtained, of an exceeding sharp, bitter, and caustic Taste; a little of a very black Powder always remains at the Bottom of the Glass. This Powder is pure Gold, which either always adheres to Silver, or else, perhaps, is easily produced from the Lead in the Fire, as Mr. *Homburg* conceives; and being incapable of dissolving in Aqua-fortis, is thus precipitated from the Solution: Pour off the clear Liquor into a clean Glass, and intitle it the *Solution of Silver*.
2. If, instead of Aqua-fortis, Spirit of Nitre be employ'd, the Solution is perform'd quicker and stronger; but otherwise, in the same manner; for Aqua-fortis, or Spirit of Nitre, prepared either with Bole or Oil of Vitriol, scarce seem to differ, except in being more or less acid; but if the least Particle of common Salt or Sal Ammoniac should have fallen into the Spirit of Nitre, or Aqua-fortis, or have been mixed with them in the Distillation, or afterwards, they will not dissolve the Silver.

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If this Solution proves limpid, the Silver was pure; but if greenish, it contained some Portion of Copper, and is not fit for the following Experiments: The Silver here, united with the Acid of the Spirit of Nitre, keeps suspended in the Water; a Drop of the Liquor, apply'd to any soft warm Part of the Body, instantly burns and eats it; whence, at once touching, it eats callous and hard Lips of Ulcers, separates the corrupted Part, and presently takes away Marks, Spots, Warts, and small Cancers. It may be diluted with pure Water, without growing thick, or precipitating; but if the Water contains the least saline Matter, the Whole will presently grow turbid. This Solution, well weaken'd with Water,



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Water, is highly detergent ; but stains the Skin it touches with a black Spot, that cannot be got out before the Scarf-skin falls off: Hence we see how the ponderous Body of Silver may lie concealed in a light limpid Liquor ; but it may be discover'd by its violently bitter Taste.

## *The Vitriol of Silver.*

1. To the Solution made in the preceding Process, gradually put single Grains of pure Silver, so long as it will dissolve them. When the last Grain remains perfectly undissolved, set the saturated Solution in a cold Place ; it will presently begin to form little, thin, white Plates, lying over one another, as if compos'd of triangular Needles like Nitre. If the Liquor be poured off from them, we thus obtain the Crystals, Salt, or Vitriol of Silver, which may be dried, but are so sharp, that they cannot safely be touched.
2. If the former Solution be not further saturated with Silver, but inspissated a little, so as to lose about a tenth Part, and then be set by for some time, the Silver will concrete at the Bottom of the Glass in a solid Form, into white Crystals, in other respects like the former, but much sharper, as being here saturated with more Acid. And these also have a much greater caustic Virtue.

## R E M A R K S.

We here see the particular and mutual Attraction betwixt Silver and the Acid of Nitre, as Silver scarcely unites with any other Acid ; for tho' it turns black, it does not dissolve with them. This Vitriol of Silver is a most immediate Caustic, and leaves a black Spot upon any Part of the Skin it touches ever so slightly ; and this Spot cannot be got off but by the scaling off of the Skin.

## *The Lunar Caustic.*

1. Take Potters Earth that is well wrought, and not very moist ; make it into a solid Cube, and perforate the upper Surface thereof perpendicularly, with a conical Stick, almost to the Bottom. Let the internal Surface of the Whole be smooth, lest the Matter poured in should come out rough. When as many of these Holes are made as are necessary, press the upper Part of each with the Finger into a wide spherical Cavity, the Middle whereof ends in a conical Hole ; for thus the Matter may be easily poured in.
2. Then take a little Glass Dish, or urinal Bottom, and put into it the first Crystals of Silver of the preceding Process ; set the Glass, without any Fear of breaking, upon burning Coals ; the Crystals will discharge an unctuous Fume, which ceasing to rise, whilst the Matter flows in the Glass, pour it carefully into the conical Cavities made in the Cube of Clay ; it will enter with an hissing Noise. If the Matter in the Glass should happen to grow stiff, set it again over the Fire ; and thus pour out all the prepared Silver into the hollow Moulds.
3. As soon as the whole Matter is grown solid, immediately break the Clay, and take out the conical Sticks of Silver ; wrap them up in hot Paper, and dry them thoroughly therein ; then wipe their Surface with a hot and dry Hare's-foot, and thus immediately put them into a clean Glass, that is to be well stopp'd with a Cork ; and thus an excellent Caustic will be obtained for Chirurgical Uses, and may be kept for many Years.

## R E M A R K S.

The Acid of the Spirit of Nitre, in the Glass over the Fire, loses its Water in the Form of Fume, and also that Part of its Acid which remained above what a certain Proportion of Silver could retain ; but the Silver detains a certain Proportion of the Acid with itself, so as not to fume, but remain fixed even in Fusion over the Fire. This Acid, retained in the Body of the pure Silver, forms a solid Mass, in which, perhaps, the Acid is the purest and strongest that can be prepared. When this Acid, adhering to the Silver in a solid Form, is exposed to the Air, it attracts the Moisture thereof, and so dissolves. The Whole of this Caustic will also dissolve in Water ; from whence, by the means of Copper, all the Silver may be recover'd, insipid, inodorous, unactive, no way acid or corrosive, but pure, metalline, and unchanged. It is strange, therefore, that the Acid should so long adhere to the Surface only of the Principles of Silver, without changing them, so as that the Nature of the Metal may be entirely recover'd unhurt. This is a most powerful Caustic, and, by a bare Touch, instantly burns the Parts of a live Body to an Eschar, under which, Nature raises an Inflammation that separates the crude Eschar, and

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leaves the Part pure ; so that, by repeated Touches with this Matter, all superficial, foul, fungous Ulcers and Cancers are excellently cured. Hence skillful Surgeons highly extol the Virtue of this Stone ; and Physicians also learn the wonderful Power of an Acid, when collected and fixed. If given internally in this Form, it is an immediate corrosive Poison, and therefore never to be used in this manner. I have known it prove pernicious to the Artificer that prepared it.

## *The Silver Pill of BOYLE, or ANGELUS SALA.*

1. Take an Ounce of pure Nitre, and dissolve it in pure distill'd Water ; then take an Ounce of the pure Crystals of Silver, made according to the Directions above ; dissolve them in thrice their Weight of fair Water, so that the Liquor may be perfectly limpid ; mix the two Solutions together, they will thus make an homogeneous, uniform, and apparently simple Liquor, without precipitating the Silver ; but uniting perfectly with the Nitre. Put the pure Liquor into a clean urinal Glass, and set it over a clear Fire, in a Place free from Dust, till the Water, which will thus be almost pure, exhales, so as to leave a Pellicule. Set the Glass in a cold quiet Place, well covered to keep out the Dust : Crystals, like Nitre, will thus shoot. Pour off the remaining Liquor, and exhale as before ; the Silver and the Nitre will be thus joined in the simple Form of Crystals. Let this Mass be gently dried.
2. Let there be at hand the Bottom-part of an urinal Glass, into which put the Crystals of Silver and Nitre, first dried in Paper ; set this Glass on the Fire, so as to prevent the Matter from running by the two great Heat or Nearness thereof ; and permit it only to dry or to fume ; keep it constantly stirring with a Stick of Glass, so that it may every way be exposed to a strong Fire, but so as not to melt, that it may be dried and freed from the sharp Acid that adher'd to the Mass, and easily render'd it caustic ; but if the Fire should melt it, then the Acid, being more closely united, fixes the corrosive Virtue, which by this gentle Calcination is separated. Let this Calcination be performed with Caution, for a long time, keeping the Matter continually stirring till no more Fume rises, tho' the Fire be now considerably strong, and almost able to melt the Matter ; for at last, after the Heat has separated all this Acid, there is no Harm if the Mass be fused, because all the external Acid is now driven from it ; and thus the purging Silver will be prepared, of an extremely bitter Taste, and should be kept in a dry close Vessel.

## R E M A R K S.

It is a wonderful and secret Art to unite Silver with Nitre : Hence the pretended Alchymists can, by this means, conceal Silver in a large Proportion of Nitre, as ten times its Quantity for Example ; and this Nitre, being projected in an equal Quantity upon melted Lead, gives an Increase of one tenth Part in Silver, which, remaining upon the Test, will deceive the Ignorant, as if a tenth Part of the Lead was here turned into Silver. The Way to discover the Cheat is to dissolve the Mass of Nitre and Silver in ten times its Quantity of pure distill'd Rain-water ; then put a polish'd Plate of Copper into the Liquor ; for thus every Particle of the Silver will immediately be precipitated to the Copper and Bottom of the Vessel, and thus be obtained perfectly pure from the Nitre and Spirit of Nitre. If, therefore, any Salt be pretended to, for the making of Silver, let it be examined in that manner. Take this dried Mass, consisting of the Salts of Silver and Nitre ; reduce it to a fine dry Powder, and it will be of an extreme bitter Taste, but by no means so caustic as before. If a little of it be apply'd to Ulcers, it acts like the Lunar Caustic, only much milder ; and if two Grains of it be fine ground with six Grains of Loaf-sugar, in a Glass Mortar, then mixed with ten Grains of the Crumbs of Bread, and formed into nine Pills, and these be taken by a grown Person upon an empty Stomach, drinking after them four or six Ounces of hot Water sweeten'd with Honey ; they will purge gently, and bring away a liquid Water, that often deceives the Patient, as coming away almost without being perceived. It kills Worms, and cures many inveterate ulcerous Disorders ; relieves in the Dropsy, and purges without griping ; but it must not be used too freely, nor in too large a Dose ; for it always proves corrosive and weakening, especially to the Stomach, which Inconvenience is remedy'd by the Rob of Juniper.

## *Inflammable Silver.*

Take an ignited Piece of Dutch Turf, after it ceases to smoke ; place it with its upper flat Surface parallel to the Horizon ; make a little Cavity in the Middle of its Surface, and therein put a Dram of dry Lunar Caustic ; it will here immediately melt, glow, take Flame, hiss, and



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shine as briskly in every respect as Nitre. After the Flame ceases, pure Silver will be found in the Hollow, as much in Quantity as was dissolved in making of the Lunar Caustic, and may thus be taken out with a Pair of Forceps, without Loss of Weight.

### R E M A R K S.

This excellent Experiment shews the physical Manner wherein Acids do but superficially adhere to Silver, and the Manner wherein Acids operate, when united to Metals, whilst, surrounding their metallic Mass, they arm the ponderous Principles thereof with Spiculae. It shews the Immutability of Silver dissolved in an Acid, and the various Ways wherein it may be concealed, yet still have its Action: It also shews the Difference of potable Silver, while existing in a saline Form by means of an adhering Acid, from that potable Silver of the Adepts, where the Principles of the Silver are supposed converted into a Fluid, that will mix with the Juices of the Body, and cannot be reduced to Silver again; but chiefly it hence appears, that the acid Spirit of Nitre, adhering in a solid Mass to the Silver, is as inflammable along with a combustible Body, as Nitre itself. This seems to happen in Silver alone, which is unchangeable by the Spirit of Nitre. Hence also we see one way whereby Silver may be obtained pure from other adhering Matters, by bare burning. The Acid here acts neither upon the mercurial Part of the Silver, nor its fixing Sulphur.

*The Recovery of Silver, when dissolved in Spirit of Nitre.*

Dissolve an Ounce of pure Silver in Spirit of Nitre; dilute it with twenty times the Weight of distilled Rain-water; heat the Solution in a cylindrical Glass Vessel, and put therein polished Plates of Copper, the smooth Surfaces whereof will every-where begin to be covered with a grey Colour, and at length appear as if thick set with Down. The Liquor that before was aqueous and colourless, will now gradually turn more and more green, in proportion as the Down upon the Copper Plates grows larger. If a Plate be shaken, the downy Covering falls off from it to the Bottom, and another like the former presently comes on; the Liquor grows greener, and the Plates grow less. The downy Covering being again shaken off, a fresh one grows; and this happens, till at length no more of the Copper dissolves. Now leave the Vessels for six Hours at Rest; afterwards shake off all the grey-coloured downy Matter from the Plates; decant, and filtre the Liquor, it will be of a beautiful green Colour, sharp, and entirely cupreous; the Plates will be much diminished in Bulk and Weight. Let the Matter at the Bottom be washed in several hot Waters, till it becomes thoroughly pure; then dry it over the Fire: It will be a fine shining Silver Powder, and yield nearly all the Silver employed, pure, insipid, and mild, without any Acid; nor will it contain the least Copper.

### R E M A R K S.

This is a Method of calcining Silver to a fine Powder, which cannot easily be obtained so subtle by any other Means. This Powder, being ground with Mercury, easily affords an Amalgama, which is otherwise so difficultly obtained, and not without a great Loss of the Quick-silver. If this Powder be melted in a Crucible, it restores the same Silver that was employed. Hence therefore it appears, how superficially the Acid of the Nitre adhered to the Silver, since the Whole of this Acid is so easily attracted by the Copper from the Silver, without any Remainder. If the Liquor of this Operation be viewed with a Microscope, it appears plainly, that little Particles of Silver are violently carried along with the Acid of the Nitre up to the Copper Plates from all the Points of the Solution. But when these Spiculae arrive at the smooth Surface of the Plate, the Acid is attracted to the Particle of the Copper, whilst the Particle of the Silver, deprived of its Acid, rests upon the Surface of the Copper; and being there increased by others coming to it in like manner, at last a soft downy Case is composed; and this Attraction is so exquisitely performed, that not the least Particle of Silver remains in the former Solution. Hence it appears, that Copper more strongly attracts the Acid of Nitre, than Silver does; wherefore this Action consists in Attraction, and a Straining of the Acid from the Body of the Liquor; for the Acid passes thro' the Pores of the Copper, leaving behind the Particles of the Silver now set free, and unable to enter; there is scarce a more beautiful Sight than this with a Microscope. The Acid of the Nitre remain'd unchanged in the Silver, and is collected perfect in the Copper, from whence it may again be procured.

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*Luna Cornea.*

1. To the pure Solution of Silver made with Spirit of Nitre, according to the above Directions, and diluted with four times its Quantity of pure Water, let fall by a Drop at a time, in a capacious Glass Vessel, a small Quantity of a strong and warm Solution of Sea-salt in Water. At the Instant the Drop falls in, the whole Liquor grows white, and surprisingly thick, without any Effervescence. Continue thus dropping in, and shaking the Glass, till the Liquor no longer continues turbid; then let it rest; a gross white Matter will fall to the Bottom in a large Quantity. Let the limpid Liquor at the Top be poured gently off, and drop into it a little hot Solution of Sea-salt; if it grows thick no longer, the Operation is well performed; but otherwise some Silver remains behind, which requires to be separated. Pour clean hot Water upon the white precipitated Matter, and wash it till it becomes perfectly insipid; then boil it in an Urinal, with a little fair Water; shake them together, and pour the Whole into a Paper-filtre, where the Water will pass thro', and leave the white Matter behind, which is to be dried with a gentle Fire, and preserved. This is a subtle Calx of Silver precipitated with Sea-salt from Spirit of Nitre, or Aqua-fortis; it will weigh more than the Silver employed, by nearly a fifth Part, on account of the Salts which adhere thereto.
2. Put this Calx of Silver into a clean Crucible; set it in a Fire of Fusion, till it melts, which it easily does; when melted, pour it out on a Marble. It appears a ponderous, shining, opaque, brown Mass, that breaks brittle with some Degree of Tenacity, whence it is called horny. It contains all the Silver employed, and at the same time the Acid of the Nitre and Sea-salt, wonderfully concreted therewith, so as not to be separated; for by endeavouring with a violent Fire to drive away the Spirit, which is so easily done in the *Lunar Caustic*, the greatest Part here becomes volatile, and the Remainder is scarce recoverable into Silver, but remains changed by the Admixture of the Salts, so intimately united and fixed, as not to manifest themselves by any saline Property. If one Part of pure Silver, calcined according to the above Directions, be mixed with two Parts of Mercury sublimata, and distilled in a Glass Retort, with a strong Sand-heat at last, almost the same perfect *Luna Cornea* will remain at the Bottom of the Retort. And if instead of Salt the Spirit of Sea-salt were used to the Solution of the Silver, the *Luna Cornea* would be perfectly the same. Mr. Boyle says, that Silver, being precipitated from Spirit of Nitre with Oil of Vitriol, then washed and fused, will become a true *Luna Cornea*.

### R E M A R K S.

This Experiment is of infinite Use, and shews how small a Difference in a physical Circumstance may often occasion a great Difference in the thing physically produced; for Silver mixed with *Aqua Regia* does not unite with the Acid thereof; but if, when Silver is dissolved by Spirit of Nitre, Sea-salt is added thereto, tho' it thus only makes an *Aqua Regia*, yet it presently occasions the Acid of the *Aqua Regia* to unite intimately with the Silver, and produce strange Effects: For if two Parts of the precipitated Calx of Silver be well ground with one Part of Regulus of Antimony, and distilled with a Sand-heat, there comes over a pure Butter of Antimony, equal in Weight to the Antimony employed, whilst the Silver remaining at the Bottom always affords true Gold upon the Reduction. Hence we may be certain, that the Weight gained by the Calx of Silver is owing to the *Aqua Regia* fixed therein, because it here goes into the mercurial Part of the Antimony; whence it is no Wonder, that those eminent Chymists *Becher*, *Boyle*, *Homburg*, and *Stahl*, have so much regarded the concealed arsenical Nature of the Metals and Salts in this Experiment. Who could conceive, that the exceedingly insipid Body of *Luna Cornea* held a fifth Part of the highly corrosive Acid of *Aqua Regia*? Hence we see what a particular Power Sea-salt has upon Metals, how covertly it may adhere to, and again be recovered from them without Loss of its Virtues. Hence also we see how strangely Metals may be disguised and concealed; and again, how Gold may be obtained from a Matter in which the Assay Masters could not, by all their Art, discover any: And hence Adepts have said, that Nature has only placed Perfection in Salt and Gold; and hence we may also learn to guard against the fraudulent Practices of those who craftily mix this Calx of Silver with Nitre, or throw it into melted Lead, and thus pretend an Increase of Silver or Gold. But our present Design does not lead us farther into this Subject. It is certain that the Industry of Mr. *Homburg*, by the Means of Tartar, Quick-lime, Sal Ammoniac, and the White of Eggs,



Eggs, has from half a Pound of Silver obtained, as he declares, three Drams and fifty Grains of running Mercury. And so much of the Nature of Silver for the present. *Luna Cornua* neither dissolves in Aqua Regia, Aqua-fortis, nor the Fire. *Boerhaave's Chymistry, Vol. 2.*

ARGES, in *Hippoc. Lib. 5. Epidem.* seems to be the Name of a Serpent, which crept into the Mouth of a young Man as he lay on his Back asleep after plentiful drinking of Wine. The Event was, that as soon as he was sensible, not being able to speak, or cry out, he clench'd his Teeth, and swallow'd the Serpent, and, being seized with dreadful Pains, threw abroad his Arms like one strangled, and tumbled and tossed about, and at last dy'd in Convulsions.

ARGESTES, or *Circius*, in *Aetius, Tetrab. 1. Serm. 3. Cap. 163.* is the Name of a Wind between the North and West. The North-west Wind.

ARGILLA, Offic. Mer. Pin. 219. Charlt. Foss. 1. Worm. Mus. 2. Schw. Foss. 365. Aldrov. Mus. Metall. 227. *Argilla nostras figulina*, Ind. Med. 14. CLAY.

Clays of all Sorts are esteem'd drying, astringent, and absterging. *Dale.*

Clay, as here understood, is a ponderous Earth, dense, viscid, and slippery. Being held for some time in the Mouth, it makes an Impression on the Tongue, something between that of Soap and Fat. When fresh dug, it may be moulded into any Figure like soft Wax; and by Fire it may be made as hard as a Stone. The Species of Clay are almost innumerable: Some are white, resembling Suet, such as that saponaceous Earth with which the Waters of *Plombiere* in *Lorraine* are impregnated; some are variegated, like the different Kinds of Porphyry and Marble, as certain Earths found in *Bohemia*. Others are of an Ash-colour, red, or black. The Clays used in Physic are, the *Lemnian* Earth, the Earth of *Malta*, and several other sealed Earths from *Germany*. *Geoffroy.*

Clays which are used in Medicine are known in the Shops by the Name of *Terræ*, Earths, of which the principal are

The Terra Chia,	Terra Pnigites,
Terra Cimolia alba,	Terra Portugallica,
Terra Cimolia purpurascens,	Terra Samia,
Terra Eretria,	Terra Sigillata alba & rubra,
Terra Lemnia alba,	Terra Sigillata Livonica,
Terra Lemnia rubra,	Terra Silesiaca,
Terra Noceriana,	Terra Turcica,
Ocra,	Terra Vitriolata.

All these are taken Notice of as they occur.

ARGISTATA, *Incerata*, or waxed. *Ruland. Johnson.*

ARGOS, ἀργός, from a Negative, and ἔργον, Work or Business, as if it were ἀεργός. So ἀργός ἀργυρός is Silver not work'd; ἀργοὶ πύροι, in *Hippocr. περὶ ἀρχαίων ἰσθρ.* is crude Wheat, not ground or prepared, but such as it is taken from the Floor. Ἀργός also signifies idle, without Business; and thus ἀργά, in *Hippocrates*, is expounded by *Erotian* ἀγύμνασα ἢ λευκά, "without Labour, or Holiday-like;" for λευκὸν ἡμέραν διάγειν is, "to spend a Day in Mirth and Pleasure;" in which Sense we are to understand that of *Silius Italicus*:

--- Albosque Dies, Horasque serenas.

ARGYRITIS Terra, ἀργυρίτις γῆ, from ἀργυρός, Silver. A sort of Earth taken out of Silver Mines, which is bespangled with many Particles of Silver intermixed. *Gal. Def.*

There is another *Argyritis*, which is a sort of *Spuma Argenti*, or Litharge. See *SPUMA ARGENTI*.

ARGYROCOME, ἀργυροκόμη, from ἀργυρός, Silver, and κόμη, Hair. A Species of *GNAPHALIUM*, which see. *Blancard.*

ARGYRODAMAS, ἀργυροδάμας, from ἀργυρός, Silver, and δαμάω, to conquer. A kind of Talc, of the Colour of Silver, that will not yield to the Force of the Fire. The Lamine hereof swallowed adhere to the Stomach, Fauces, and Throat, and endanger an Inflammation of those Parts. *Castellus.*

ARGYROGONIA, ἀργυρογονία, from ἀργυρός, Silver, and γίνομαι, to be made or generated of. An argentific Seed, perfectly digested from a Solution of Silver, or an argentific Tincture of a white Colour, in the same manner as *Chrysogonia* is the aurific Seed. See *CHRYSOGONIA*. *Castellus.*

ARGYROPHORA, ἀργυροφορά, from ἀργυρός, Silver, and φέρω, to bring. The Name of an Antidote in *Myrepsus*, which seems to be so called on account of its Costliness.

ARGYROPOEIA, ἀργυροποιία, from ἀργυρός, and ποίω, to make. The Art of making Silver out of more imperfect Metals and Minerals, by Means of the Philosopher's Stone, or the Philosopher's Mercury, or the argentific Seed, spoken of before under *ARGYROGONIA*, which see. *Castellus.*

ARGYRUS, ἀργυρός, Silver.

ARGYROTROPHEMA, ἀργυροτρόφημα, from ἀργυρός, Silver, and τροφή, Nutriment. A kind of Food made of Milk,

and designed to allay the Heat of the Body, and to moisten it. *Galen. de Succ.*

ARHEUMATISTOS, ἀρευματιστος, from a Negative, and ῥεύμα, a Defluxion. An Epithet bestow'd on the external Parts, and especially the Joints, while they are free from gouty Rheums. *Castellus.*

ARIA, Offic. *Aria Theophrasti*, Ger. 1146. Emac. 1327. *Aria Alni effigie, folio laniato, major*, Jonsl. Dendr. 69. *Sorbus Alpina*, J. B. 1. 65. Raii Hist. 2. 1459. *Sorbus sylvestris, Aria Theophrasti dicta*, Park. Theat. 1421. *Mespilus Alni lanato folio, major*, Herm. Cat. Hort. Lugd. Bat. 424. *Mespilus Alni folio subtus incano, Aria Theophrasti dicta*, Raii Synop. 3. 453. *Mespilus Alpina, folio Alni lanato, major*, Rupp. Flor. Jen. 110. *Crataegus Alpinus, Alni folio incano*, Ejuld. *Mespilus Alni effigie, lanato folio, major*, C. B. Pin. 451. THE WHITE BOAM-TREE.

It grows in Woods upon rocky Mountains, and flowers in April. The Fruit is recommended for mitigating Coughs, and promoting Expectoration. *Dale.*

ARICYMON, ἀρικύμων (from the augmentative Particle ἀρι, which is never read but in Composition, and κύνω, to conceive) in *Hippocrates* περὶ ἐπικυήσεων, is explain'd in *Galen's Exegesis* by ἡ ταχέως ἐγκύμων γυναικὴν, "One who soon conceives." *Λεκύμων*, in *Hesychius*, is expounded by ἐνυύλασις, "Easy and prompt to conceive."

ARIDA MEDICAMENTA, ἄριδα φάρμακα, dry Medicines, are such as consist of Powders. *Aetius*, in his *Tetrab. 2. Serm. 3.* has a good long Chapter, *Cap. 98.* wholly on dry Collyria for the Eyes.

ARIDITAS Corporis, a Dryness of the Body. See *MARASMUS*. Also the lanuginous Superficies of the Tops of the Hairs, when they look as if they were powder'd, is call'd a Dryness, ἄριδος, *Gal. Def. Med.* There is also an *Ariditas Linguae*, Dryness of the Tongue, a common Symptom in Fevers.

ARIDUM, ἄριδον. The same as *SICCUM*, which see.

ARIDURA, a total Consumption, or Syderation, as they call it, of the Body or Members. *Ruland. Johnson.*

ARIES, a Ram. The Flesh of the Ram is more rank and indigestible than that of the Sheep or Wether. See *OVIS*.

ARIGEOS, ἀριγέως, from a Negative, and ῥίγος, Cold, in *Hippocrates, De Rat. Viel. in Morb. acut.* signifies without Cold, and is there opposed to ἀθαλπέως, which is from a Negative, and θάλπος, Heat; and denotes the Absence of that Quality.

ARILLA, ῥίγαρον. The same as *GIGARTON*, which see.

ARIOBARZANIUM Emplastrum. The *Ariobarzanian* Plaister. The Composition see under the Article *ANSCISSUS*.

ARIS, ἄρις, is expounded by *Galen*, in his *Exegesis*, ὅτι μόνον τὸ ὄργανον, ἀλλὰ καὶ βλάστη τις ὡς ὀνομαζομένη, "Not only an Instrument, but an Herb so call'd;" which is the same as *Arisarum*; or, as others will have it, a small kind of *Arisarum*.

ARISARUM, Offic. *Arisarum angustifolium Dioscoridis forte*, C. B. Pin. 196. Boerh. Ind. A. 2. 73. Hist. Oxon. 3. 545. *Arisarum angustifolium*, Ger. 686. Emac. 835. J. B. 2. 787. Chab. 258. Raii Hist. 2. 1211. *Arisarum longifolium*, Park. Theat. 375. *Arum humile angustifolium, pistillo longissimo tenui inflexo mucronato*, Herm. Cat. Hort. Lugd. Bat. 60. *Arum Scorzoneræ folio*, Elem. Bot. 130. Tourn. Inst. 160. FRIERS-COWL.

This grows in *Italy* and *Dalmatia*.

*Dioscorides* says it is a small Plant, with a Root like that of the Olive, and more acrimonious than the Arum, which, he says, stops the Progress of *Noma*, if apply'd to them by way of Cataplasm. Of this Root are also made *Collyria*, which are effectual in curing Fistulas. By *Collyria* *Dioscorides* does not mean what we call so, but Tents made in the Shape of a *COLLYRIUM*, which see. It corrupts the Pudendum of any Animal whatever, if introduced into it. *Dioscorides, L. 2. C. 198.*

It heats, dries, incises, opens, absterges, and digests. *Dale* from *Galen*.

ARISTA, is that sharp-pointed Needle that stands out from the Husk or Hufe of a Grain of Corn, Grass, &c. and is call'd Awn, or Beard. *Miller's Dictionary.*

ARISTALTHAEA, ἀρισθαλαία, from ἄρις, excellent, and ἄλθα, the Marshmallow. A Name bestow'd on the *Althæa*, or Marshmallow, for its Virtues.

ARISTARCHI Antidotus Paulina. An Antidote of *Aristarchus* call'd *Paulina*; the Preparation of which you have in *Aetius, Tetrab. 2. Serm. 4. Cap. 65.*

ARISTEAS. A Physician of *Rhodes*, Author of one of those Antidotes in *Myrepsus*, which are call'd *Acharisti*. The Reason of this Name see under *ACHARISTON*.

ARISTI Emplastrum nigrum. The black Plaister of *Aristus*, a famous Surgeon in *Scribonius Largus, Cap. 80.* It is the same as the *Tetrapharmacum*.



**ARISTIONIS Machinamentum.** A Machine for restoring Luxations, invented by *Aristion*; but seems to be no more than an Improvement of the *Glossocomum* of *Nymphiodorus*. *Oribas. de Machin.*

**ARISTOGENIS Malagma.** A Malagma for the Bones and Nerves, invented by *Aristogenes*; the Composition of it is describ'd by *Celsus*, *Lib. 5. Cap. 18.*

**ARISTOLOCHIA**, Birthwort. Of this celebrated Plant there are many Species taken Notice of by Botanic Authors, as the

*Aristolochia longa*, Offic. & Dod. Lob. J. B. *Longa vera*, C. B. Park. *Altera radice pollicis crassitudine*, Cæsalp. *Ἀειρολόχια μέγας*, Diosc. *Aristolochia longa Italica sive mascula*.

The Roots of this Birthwort are large and long, often as thick as one's Wrist, and a Foot long, without Fibres till towards the Bottom, sending forth numerous square Branches, two Foot high or more; on which grow alternately, at the joints, yellowish-green Leaves, somewhat like the Leaves of Ivy, or rather those of black Briony, on pretty long Foot-stalks: From the setting on these arise the Flowers, one at each Leaf, which is made of one long and hollow Tube, with a long Flap at the End, of a brownish-yellow Colour, growing on Foot-stalks, half an Inch long, which are succeeded by roundish Pear-fashion'd Fruit, as big as a Walnut, containing flattish, broad, roundish, brown Seed.

It grows in *Italy*, *Spain*, and the Southern Parts of *France*, and flowers in *May*.

This Root is so call'd, because it is esteem'd excellent in promoting the *Lochia*, or Child-bed Evacuations of Women, after the Fœtus and Secundines are expell'd. It is found in *Sicily*, in *Spain*, and in *Narbon* in *France*. In *Germany* it is only found in some Gardens. It is best when of a very close Texture, hard, entirely free from Worms; externally of a greyish, and internally of a yellowish Colour.

*Aristolochia rotunda, vera & major*, Offic. *Rotunda*, Matth. Dod. Lob. J. B. *Vera*, Trag. Cam. *Prima*, Cæsalp. *Rotunda vulgarior*, Park. *Rotunda flore ex purpura nigro*, C. B. *Malum terre*, Gaz. & Larg. *Aristolochium*, Hipp. *Arist. rotunda Italica sive fœmina*. *Paracelsus* calls it the great Matrix-root, because it resembles the Matrix of Women. Its Flower also, as is said, bears an exact Resemblance to the Uterus.

The Root of this *Aristolochia* is thick and roundish, hard and tuberos, of a brownish Colour without, and yellow within, of a very bitter Taste. The Stalks grow to the Height of the former, square, and weak; the Leaves are somewhat rounder, and grow on very short Foot-stalks, which seem to encompass the Branches: The Flowers are, in Shape, like the former, but of a dark-purplish Colour on the Inside; the Fruit is likewise of the same Bigness with that, but more round. This grows in the same warm Countries, and flowers about the same time.

*Aristolochia adulterina, sive rotunda vulgaris*, Offic. & Trag. Cam. *Radix cava major*, Dod. Clus. *Cava herbariorum*, Lob. *Fumaria altera*, Matth. *Tuberosa sive bulbosa, radice cava, major*, C. B. *Radice cava, flore purpurascens*, J. B. *Radice cava major, flore carneo*, Park. *Bulbosa spuria flore, purpurea & alba, radice cava*, J. G. Volkham. Flor. *Pseudofumaria bulbosa*, A. Q. Rivin. *Pistilochia concava*, Fuch. *Capnos phragmites*, Plin. *καπνὸς χαλιδωνίας*. *Capnos chelidonia*, Lonicer. *Capnos bulbosa*, *Capnicum chelidonium*, *Capnos latifolia*, *Pseudaristolochia, pes gallinaceus*.

It grows naturally in moist and shady Places; and is also found in Hedges, Vineyards, and shady Forests. It is also to be met with in some Mountains, from whence it is transplanted into Gardens. The Root is externally of a greyish, and internally of a yellowish-dark Colour, entirely hollow, and bitter to the Taste.

*Aristolochia longa nostras*, Offic. *Tenuis*, Koker. Cat. Hort. Med. Harmel. *Longa*, Trag. Matth. *Longa vulgaris*, Cam. *Saracenicæ*, Ger. Dod. *Clematitis recta*, C. B. *Clematitis vulgaris*, J. B. *Arist. altera radice tenui*, Cæsalp. *Ἀειρολόχια κληματίτις*, Diosc. This Herb resembles the true *Aristolochia longa* in every respect, except that it bears Flowers that are yellow, or of a brownish Black. It is found in a great many Places in *Germany*, *France*, and *Spain*. In *Germany* it grows wild, and is transplanted into Gardens; but is of no Use.

The Root of this Birthwort is much smaller and slenderer, than the first or long Birthwort, running and spreading much in the Earth: The Stalks are firmer, and grow more erect; and whereas the two former have but one Flower at a Leaf, this has three or four, less than the other, but of the same Colour; the Fruit likewise is bigger, and the Leaves larger and broader.

*Aristolochia* has always been had in great Esteem; for which Reason *Apuleius*, *L. de Virt. Herb. Cap. 19.* and *Oribasius, de Herbar. & Simplic. Virtute*, *L. 1. C. 5.* tell us, that Physicians cannot practise their Art successfully without it. In Apothecaries Shops, the *Aristolochia longa*, & *rotunda*, are principally used. They are of a warm, drying, opening, subtil, purifying, and healing Nature. They are principally used in Diseases of the Head, Lungs, Liver, and Womb. They purge

and drain the Cerebellum of cold Humours, and are of remarkable Efficacy in Epilepsies arising from the Uterus, *Sam. Schomborn. Man. Med. Pract.* They are also good in Palsies and the Cramp; they dislodge the gross Humours of the Breast and Lungs; and greatly relieve those who labour under Disorders of the Lungs, *Arnaldus de Villa Nova, Lib. 2. Breviar. Pract. Joh. Fernel. L. 5. Meth. Med.* They also afford Relief to Asthmatic Patients, *Hier. Reusner. Obs. Med. 151.* In the Asthmatico-scorbutic, and those who are afflicted with Coughs, they fortify the Stomach, kill Worms, remove Obstructions of the Liver and Spleen, dissolve coagulated Blood, carry off Quotidian Fevers, *Joh. Steph. Ströbelberg. Remed. Seng. pro Cur. Feb. Introd.* They cure the Dropsy and Cachexy, restore the Menses when obstructed, expel the dead Fœtus and After-birth. The Root also of the *Aristolochia longa*, if tied to a Woman's Thigh, is said to hasten Delivery, *Lud. Merc. L. 3. de Mulier. Affect. Cap. 8. & Lib. 4. Cap. 3.* They are very serviceable for the necessary Purgation of the Matrix after Delivery: They also allay excessive Pains of the Womb after Child-birth. They cleanse and cure internal Ulcers, Wounds, and inveterate Runnings, especially of the *Pudenda*. They destroy fungous Flesh about the Lips of Wounds. Their Powder corrodes and wastes away mortify'd Flesh, either in Ulcers, or in Fistulas, *Gabr. Fallop. L. 2. Secret. P. M. 214. P. Bayr. Lib. 16. Pr. C. 5. Adr. Toll. Comment. ad Prax. Aur. Jo. Stocker, L. 1. C. 16.* "Simon Pauli, only with the Powder of *Aristolochia longa*, boil'd in the Water of Paul's Betony, and apply'd in a Linen Cloth, in the Space of a few Days happily consolidated a malignant Ulcer, which a Surgeon had in vain attempted to cure for the Course of a whole Year." They purify the Skin, dissipate Blotches and the Itch, extract noxious Matter from Wounds or Ulcers, if the Juice of the Herb, or its Powder, are apply'd to them.

The *Aristolochia rotunda* is possess'd of a Quality, by which it cleanses the Filth of the Ears, and strengthens the Hearing. *Matth. Grad. Pr. P. 1. C. 34.* It also opens internal Abscesses. They are also good against Poisons, and venomous Bites, *Cicero de Divinat. 1. Cap. 10.* They are also good in the Plague, and resist Putrefaction; as Myrrh also does, *Jean. Voch. de Colonia, Tr. 1. de Peste, Cap. 14. M. Unz. Antidot. pestilent. L. 2.* 'Tis also for this Reason they are added to the *Theriaca*. The Powder of the *Aristolochia rotunda* is very successfully given in Cardialgias, and in Disorders of the Heart and Stomach, mix'd with Sugar of Roses; as also in a poach'd Egg, or any other convenient Vehicle, *Joh. Camer. in Hort. Med. p. 21.* For "this Root is most friendly to the Stomach, restores its Ferment, assists Concoction, and powerfully dissipates the Malignity of the Humours. The *Aristolochia longa* is also of singular Efficacy in removing Pains of the Stomach." *Gualt. Bruel. in Prax. Med. G. H. Velsch. Phil. 1. Exot. Curat. & Obser. 439.* The *Rotunda*, according to *Sennertus*, *L. 5. Inst. Med. P. 1. S. 1. P. 4. & J. Heurn. L. 2. Meth. ad Prax. C. 8.* opens internal Abscesses. The Root is also excellent in Clysters, exhibited to epileptic and apoplectic Patients. The distill'd Water of the *Aristolochia longa* is good for the Gout and the Cramp, removes Belly-aches, cures beginning Dropsies, the Jaundice, the Falling-sickness, Rheumatic Pains, and Fevers. It cures *Fistulas in Ano*, and other Disorders of the genital Parts of Men and Women. It is also excellent in the Plague. The Extract of the Root of the *Aristolochia rotunda* is also excellent for Oppressions of the Breast, and for those who labour under Disorders of the Lungs; in which Cases the following Pills may be given:

Take of the best Gum Ammoniac, reduced to Powder, one Dram; well prepar'd Flowers of Sulphur, one Scruple; mix with a sufficient Quantity of the Extract of the Root of the *Aristolochia rotunda vera*, and make sixty-six Pills, which shake in any proper Vessel, along with the Powder of the Root of *Florentine Orrice*. Of these let the Patient take eleven for a Dose. Or,

Take of the best Gum Ammoniac, reduced to Powder, one Dram and an half; Root of the *Aristolochia rotunda vera*, reduced to Powder, half a Dram; Flowers of Sulphur, half a Scruple: Mix with a sufficient Quantity of the Extract of the Roots of *Elicampagne* and *Aristolochia rotunda vera*, dissolved in Spirit of Scurvy-grass. Make sixty-six Pills, and shake them in a Vessel, along with the best Powder of *Liquorice-root*. Let eleven of these be taken in the Morning fasting.

*Aristolochia* also effectually corrects and removes all Corruptions, and Putrefactions of the Body, and answers the same Intentions that the Extract of *Angelica* does, *Jo. Dan. Mylius, L. 4. Antidotar. C. 3.* We may also use a Decoction of the *Aristolochia rotunda vera* in scorbutic Coughs. *Fernelius*, in *Dispensat. & Meth. Med. L. 7. p. M. 1246.* orders Pills, made of the Root of *Aristolochia*, for Epilepsies, for the Larve, and such



such as labour under Disorders of the Lungs, for old Coughs, Obstructions of the Spleen and Liver, Diseases of the Kidneys, Obstructions of the Menfes, Expulsion of the dead Fœtus, and the After-birth. Its distill'd Oil is highly commended for facilitating Delivery, in *Ephem. N. C. Dec. 2. Ann. 3. Obs. 207*. A small Nose-gay made of *Aristolochia* accelerates the Menfes. It also brings away the Fœtus and Secundines, *J. Fernel. L. 6. Meth. M. C. 9*. The *Aristolochia longa vulgaris* is an admirable Root, if mix'd with *Unguentum Populeum*, in the blind Hæmorrhoids, *Joh. Wittich. Vade Mecum, P. M. 341*. *Aristolochia* burnt, and apply'd to the Hæmorrhoids, puts a Stop to them, *J. Matth. Grad. Pract. C. 2. P. 20*. The Quintessence of the *Aristolochia rotunda* thoroughly cures any simple Wounds within the Space of twenty-four Hours, and sooner; so that its Effects seem altogether miraculous, and beyond the Powers of Nature. It also cures deep and compound Wounds so quickly, that a Miracle rather seems to be wrought, than a Cure perform'd by it. It is successfully given to such as have fallen from Heights, or are in a languishing State of Health; and also to such as have received internal Wounds. It dissolves grumous Concretions of Blood in the Stomach, or in any other Parts of the Body, *Barthol. Zorn, Botaniclog.*

*Apuleius* gives a whimsical Receipt, attended with many superstitious Ceremonies, for disenchanted those who are render'd impotent. It consists in washing the Patient with a Decoction of what he calls *Leontopodium*, and a subsequent Fumigation with the Herb *Aristolochia*.

The SERPENTARIA VIRGINIA, which see, is a Species of *Aristolochia*.

By the Chymical Analysis, it yields a great deal of acid Liquors, Oil, and Earth, a little urinous Spirit, and no volatile concrete Salt. Its fix'd Salt gives no Tincture of Yellow to the Solution of Sublimate; whence we may conjecture, that the Salt of the *Aristolochia* is much the same as the Salt of Coral would be, if one pour'd more Acid upon it than is sufficient to saturate the Coral: Besides this, the Salt of the *Aristolochia* contains a little *Sal Ammoniac*, and is involv'd in a great deal of Sulphur. *Martyn's Tournefort.*

ARISTON, ἀριστον, Dinner. 'Αριστον, "to dine," in *Hippocrates πρὸς ἀρχ. insp.* is oppos'd to μονοσήμερον, "to eat but once a Day;" which was at Supper-time. Those who eat twice a Day, took their *Ariston*, or Dinner, three Hours after Sunrise.

*Ariston magnum & parvum*, according to *Avicenna*, are Remedies prepar'd against a Phthisis, Pains in the Belly, mix'd Fevers, &c.

ARISTOPHANEION, ἀριστοφάνειον. The Name of an emollient Plaster, which consists of four Pounds of Pitch, two Pounds of Apochyma, (see ZOPISIA) one Pound of Wax, an Ounce of Opopanax, and half a Pint of Vinegar. *Gorræus, from P. Æginet. Lib. 7. Cap. 17.*

ARITHMOS, ἀριθμός, Number. 'Αριθμοὶ τῶν νοσημάτων, in *Hippoc. de Rat. Viét. in Morb. acut.* signify the numerical Differences of Diseases in Individuals, by which the *Cnidian* Physicians distinguish'd and number'd Diseases. The Passage runs, "ἐνιοὶ ὅ τινες ἀριθμοὺς ἐκάστω τῶν νοσημάτων σάφα ἐθέλοισι φερέσθαι, ἐκ ὁρῶν ἐγχεύται." "Some, endeavouring to give us a clear Account of the Numbers (numerical Differences) of each Disease, have shewn themselves mistaken." This Place to me seems very well clear'd by *Erotian*, when he says, 'Αριθμοὺς, τὰ ὀνόματα ἔτω καλῶ. "He calls the Names *Arithmoi*;" for the Names of Diseases, by which they are distinguish'd and number'd according to their Differences, are plainly hinted at; and therefore *Hippocrates* subjoins, Μὴτ' αὐτοὶ ὅ νόσημα δόκειν εἶναι, ἢ μὴτ' αὐτὸ ὄνομα ἔχει. "Nor takes it for the same Disease, unless it be call'd by the same Name."

ARLADA, ARLADAR. Realgar burnt, or calcin'd. *Castellus.*

ARLES CRUDUM, in *Paracelsus*, are Drops falling in June, especially by Night; otherwise call'd *Hydatidis*. *Paracelsi de Grad. & Comp.*

ARMALA, in *P. Æginet. Lib. 7.* the same as *Harmala*, *Harmela*, or Wild Rue. See HARMELA.

ARMARIUM UNGUENTUM, ἀρμάριον. See HOPLOCHRISMA.

ARMATURA, Arab. *Abges*. The same as AMNIOS, which see. *Castellus.*

ARME, ἄρμην, from ἄρμω, to adapt, signifies, according to *Erotian*, every Coalition of Wounds in general; but in *Galen's Exegesis*, it is particularly apply'd to the Suture of the Head. Ἄρμην, in *Hesychius*, denotes the joining together, or framing the Parts of the Body.

ARMENA, τὰ ἄρμηνια, in *Hippocrates*, signify the Instruments, with all the Apparatus, necessary for an Operation in Surgery. In *Lib. de Rat. Viét. in Morb. acut.* τὰ ἄρμηνια includes all the Apparatus for Bathing; and *Hesychius* expounds τὰ ἄρμηνια, in general, by τὰ πρὸς τὴν ὑποκείμενον πράγμα επιτηδεύειν. "Such Things as are convenient for the Performance of any Work we are about."

ARMENA Bolus. See BOLUS.

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ARMENIACA MALUS, *Præcocia*, Offic. *Armeniaca Malus major*, Ger. 1260. Emac. 1448. *Armeniaca*, *Malus Armeniaca*, Mont. 37. *Malus Armeniaca major*, Park. Parad. 579. *Jonst. Dendr. 74*. *Armeniaca Mala majora*, C. B. Pin. 442. J. B. 1. 167. *Raii Hist. 2. 1514*. *Mala Armeniaca*, Chab. 11. *Armeniaca fructu majori, nucleis amaro*, Tourn. Inst. 623. *Elem. Bot. 495*. *Armeniaca Malus, fructu majori ex luteo rubescens*, Herm. Cat. Hort. Lugd. Bat. 59. *Bocch. Ind. A. 2. 242*. THE APRICOCK-TREE.

This Tree is so well known, that a slight Description of it is sufficient: It has broad, round Leaves, pointed at the End. The Flowers are larger than those of Plums, of a white Colour. The Fruit is round, and somewhat flat-sided, with a Sinus running on one Side from Head to Stalk; of a yellowish Colour, with a Blush of Red; when ripe, easily parting from the Stone, which is smooth like a Plum-stone, flattish, with three prominent sharp Ridges on one Side, with a bitterish Kernel within. It flowers in *March* and *April*, the Fruit not being ripe till after Midsummer.

Apricocks are of very little Use in Medicine; but are eaten as other Summer Fruits, being pleasant and grateful to the Stomach. They are frequently preserv'd with Sugar; and of the Kernels, infused in Brandy, is made the famous Cordial call'd *Ratufa*. *Miller's Bot. Off.*

*Lemery* adds, there are three Sorts of Apricocks; the first of which are pulpy, almost round, and grow as big as a small *Peach*, flat on the Sides, one of which is of a dark Red, and the other yellowish. The Pulp is tender, pleasant, and of a good Smell. It contains a very hard and flat Stone, wherein there is a bitter Kernel.

The second differs from the first, in that they are of a more whitish Colour, and that the Kernel is sweet.

The third are smaller than the others, but not so well tasted, and of a yellowish Colour. These last grow upon a Tree that is not cultivated like the rest. In choosing your *Apricocks*, take those that are pulpy, large, well-colour'd, and well-tasted.

They moisten, create an Appetite, provoke Urine, are a Cordial, Pectoral, and promote Expectoration. An Infusion of Apricocks is look'd upon to be good to allay the Heat of Fevers: They also say, that the Kernel of an Apricock kills the Worms.

Apricocks fill the Stomach with Wind, and easily corrupt there; and therefore they ought to be moderately taken.

They contain an indifferent Quantity of Oil and essential Salt, and much Phlegm.

They are good, in hot Weather, for young People that have good Stomachs, and of a bilious and sanguine Complexion.

Apricocks are Fruits of an agreeable Taste, and used more for Pleasure than Health. They cool and moisten, because they contain much Phlegm, intermix'd with a great Quantity of acid, essential Salt; and are fit to allay the violent Motion of the Fluids; yet they create an Appetite, because this acid Salt lightly pricks the Sides of the Stomach.

In the mean time, People ought to be cautious of this sort of Food, which contains a viscous and thick Juice; and sometimes, in the very first Passages, causes Wind and crude Humours.

They preserve *Apricocks*, to render them more pleasing to the Taste, and that they may keep the longer. Being thus order'd, they are the less injurious, because their viscous Phlegm is rarefy'd by the Sugar and Boiling. They are also more pectoral than raw Apricocks; for, besides the oily and embarrassing Parts naturally contain'd in them, the Sugar, wherewith they are preserv'd, supplies them with other Qualities proper to mitigate the Sharpness of the Humours in the Breast.

You may extract an Oil out of them good for Noise in the Ears, for Deafness, and easing the Piles. *Lemery on Treas.*

The Summer Fruits, when crude and unripe, are extremely pernicious, and productive of various Disorders; but when perfectly ripe, perhaps nothing is more wholesome or medicinal; as, in this State, they furnish a saponaceous Juice, capable of resolving Obstructions. But as our Climate seldom ripens these to Perfection, it is prudent to boil, bake, or preserve them; because the Heat ripens them more, and destroys their elastic Air, which is sometimes troublesome on the Stomach.

ARMENUS LAPIS.

*Lapis Armenus*, Offic. Calc. Mus. 468. *Geoff. Pract. 76*. *Schrod. 346*. *Worm. 66*. *Charlt. Inst. 27*. *Lapis Armenus Officinarum*, *Woodw. Att. Tom. 1. P. 195*. N. 26. *Lapis Armenus*, *Boet. 292*. *Matth. 1352*. *Armenium*, *Schw. 366*. *Aldrov. Mus. Metall. 351*. *Azutum, sive caeruleum Fossil*, *Mer. Pin. 218*. ARMENIAN STONE, per *Woodwardum*, COPPER ORE OF A SKY OR PALE-BLUE COLOUR.

The *Armenian Stone* is opaque, with green, blue, or blackish Spots, smooth, and marked like the *Azure Stone*, with gold-coloured Specks, and friable. There is indeed but very little Difference between the two Stones, they being often found in the same Glebe, and used indifferently for each other, as having the same Virtues; only the *Armenian Stone* is more strongly purgative.



purgative. It is given from six Grains to a Scruple; and, externally used, it is detergent, with some Degree of Acrimony and Stypticity. It is very seldom used in Physic; but the Painters employ it in making a beautiful blue Colour, with a greenish Cast. *Geoffroy*.

*Alexander Trallianus* prefers the *Lapis Armenus* to white Hellebore, as a Purge, in melancholy Cases.

ARMERIA, *Lychnis flore laciniato*, Mont. Ind. 37. *Armerius pratensis*, Ger. 480. Emac. 600. *Armerius sylvestris*, Meic. Bot. 1. 21. Phyt. Brit. 10. *Armoraria pratensis mas*, Mer. Pin. 11. *Lychnis plumaria sylvestris simplex*, Park. Parad. 253. Raii Hist. 2. 1000. Synop. 3. 338. *Lychnis pratensis, flore laciniato simplici*, Hist. Oxon. 2. 537. Tourn. Inst. 336. Elem. Bot. 281. Boerh. Ind. A. 213. Dill. Cat. Giff. 69. Rupp. Flor. Jen. 92. Buxb. 200. *Caryophyllus pratensis, laciniato flore simplici, sive Flos Cuculi*, C. B. Pin. 210. *Flos Cuculi, Odontis quibusdam*, J. B. 3. 347. *Flos Cuculi, Odontitis Plinii*, Chab. 445. MEADOW-PINK.

It grows in watry Places, and flowers in May; the Flowers are in Use. It is a good Alexipharmic, and commended against Poison. *Dale*.

ARMILLA, that circular Ligament which comprehends all that Multiplicity of Tendons which belong to the whole Hand within a Circle in the Region of the Carpus, and is easy to be divided into several others; for which Reason some make two of them, one encompassing the Inside of the Carpus, which is broad and strong, and holds together all the Tendons of the Musculi Flexores; the other, on the Back of the Carpus, consists of six lesser ones connected to one another, and rolled about the Musculi Extensores, like so many Rings. *Castellus*.

ARMONICACUM, the same as AMMONIACUM, which see.

ARMORACIA, Offic. Schrod. *Raphanus sylvestris*, Ger. 185. Emac. 240. *Rapistrum album articulatum*, Park. Theat. 863. Raii Hist. 1. 805. *Rapistrum flore albo, siliqua articulata*, C. B. Pin. 95. *Rapistrum flore albo*, Mer. Pin. 103. *Rapistrum flore Erucæ foliis*, Merc. Bot. 1. 64. Phyt. Brit. 103. *Rapistrum flore albo striato*, *Sinapi agreste album Trago*, J. B. 2. 852. *Rapistrum flore albo striato*, Chab. 273. *Raphanistrum flore albo striato, siliqua articulata striata minore*, Hist. Oxon. 2. 266. Tourn. Inst. 230. Elem. Bot. 197. Boerh. Ind. A. 2. 21. Dill. Cat. Giff. 116. *Raphanistrum siliqua articulata glabra, majore & minore*, Raii Synop. 3. 296. WILD RADISH.

It grows amongst Corn, and flowers in June. The Root is in Use. It warms and dries. It incides mucilaginous tartareous Concretions; it attenuates, resolves, opens Obstructions of the Viscera, is diuretic, lithontriptic, and antiscorbutic. *Dale* from *Schrod*.

ARMORUM PUGNA, a sort of Gymnastics. This kind of Exercise, says *Oribasius* from *Antyllus*, was not in Use among the Antients as a Remedy, but was invented by the Romans, principally with a Design to promote the military Art, and is now received among the Gymnastics.

The Patient, who is supposed to prepare himself for a Duel, puts on military Armour, and engages with an Adversary, or fights against a Pillar.

This Exercise is proper to render the Body more fit for Motion, and to increase Flesh; but it tends to make the Flesh soft and loose, and is noxious to the Head, which suffers as well on account of its being so closely streightened and covered with the Cap and Helmet, as by the Weight with which it is oppressed. But this sort of Gymnastics mightily professes and promises to procure us the Benefits of a long Breath, and Firmness of Body, since they who are inur'd to it may very well bear any other Exercise that requires much Breath. *Oribas. Med. Coll. Lib. 6. Cap. 36*.

ARMUTHEUS LAPIS, corruptly written for ARMENIUS LAPIS, by *Neckepsius*. *Actius Tetrab. 1. Serm. 2. Cap. 47*.

ARNABO, a Name for Zedoary. See ZEDOARIA.

ARNACIS, ἀρνάκις, in *Hippocrates πειρὲς ἐκκενύσι*, is a Lambskin with the Wool.

ARNALDIA, the Name of a malignant, slow, and chronic Disease, formerly pretty common in England, and usually attended with an Alopecia, whence it seems to be a kind of *Lues Venerea*. *Blancard*.

ARNICA, a Species of DORONICUM, which see.

ARNOGLOSSUM, ἀρνόγλωσσον, from ἀρς, a Lamb, and γλῶσσα, a Tongue. Lamb's-tongue, a Name for Plantain. See PLANTAGO.

AROEIRA, a Species of the Lentisk. See LENTISCUS.

AROHOT, Mercury. *Rulandus*.

AROMA, ἄρωμα. It signifies any thing fragrant or odorous; but is sometimes taken for Myrrh.

AROMATICA, ἀρωματικά, from ἄρωμα, a Word apply'd to all fragrant Things, whether Spices, Herbs, Flowers, Seeds, or Roots. It is remarkable, that Aromatics, or Spices, preserve Animal Substances from Putrefaction; and that Providence has taken care to furnish warm Climates with Plenty of Aromatics,

which the Inhabitants make frequent Use of, and probably thereby check that spontaneous Tendency to Putrefaction, to which Heat inclines them.

#### AROMATICUM ROSATUM. Rose Spice.

Take of exungulated red Roses, fifteen Drams; of Liquorice sliced, seven Drams; of Aloes Wood, and yellow Saunders, each three Drams; of the best Cinnamon, five Drams; of Cloves and Mace, each two Drams and an half; Gum Arabic, and Tragacanth, each eight Scruples; of Nutmegs, the greater Cardamoms, and Galangals, each one Dram; of Indian Spikenard, one Scruple; and let them all be reduced into a Powder to be kept for Use.

This Medicine is frequently used in Cases where there is too great a Quantity of watry and superfluous Matter in the Stomach. It contributes to the Concoction of the Food, prevents Putrefaction, corrects the Relaxation of the Stomach, removes Weakness, strengthens the whole Lower Belly, and Organs of Nutrition. It dissipates the Flatulencies which distend the Stomach, restores the lost Appetite, removes Nauseas, and is surprisingly beneficial to those who labour under Disorders of the Stomach. Besides, it very much refreshes those who are recovering, or have just got the better of any long and tedious Illness. *Zwelfer Not. in Pharm. August*.

AROMATITIS, ἀρωματίτις, a precious Stone, of a bituminous Substance, in Colour and Smell resembling Myrrh, whence it takes its Name; it is found in Arabia and Egypt. *Goræus*.

AROMATOPOLA, ἀρωματοπώλης, from ἄρωμα, Spice, and πωλέω, to sell. A Druggist; also a Grocer. *Blanc*.

ARON, ἄρον. See ARUM.

ARONIA.

*Mespilus Aronia*, Offic. *Mespilus Aronia*, *Azarolus*, Mont. Ind. 48. *Mespilus Aronia*, Ger. 1265. Emac. 1454. *Mespilus folio laciniato, spinosa, fructu majori esculento*, Raii Hist. 2. 1458. *Mespilus Aronia veterum*, J. B. 1. 67. Chab. 3. *Mespilus Aronia, sive Neapolitana*, Park. Theat. 1423. *Mespilus Apii folio laciniato*, C. B. Pin. 453. *Jons. Dendr. 44*. Boerh. Ind. A. 2. 256. Tourn. Inst. 641. Elem. Bot. 503. THE NEAPOLITAN MEDLAR.

It is sown with us in the Gardens of the Curious, and flowers in May. The Fruit is in Use. It binds the Belly moderately. *Dale*.

AROPH of *Paracelsus* are either Flowers very finely prepared after a Chymical way, by Sublimation of equal Portions of Lapis Hæmatitis and Sal Ammoniac; or the Word signifies Saffron and Bread moistened with Wine, and inclosed in a Vessel closely stopped, and set in Horse-dung for some Days, and afterwards distilled, *Helmont de Lithiasi*. *Paracelsus* also speaks of Aroph as a Thing prepared by Distillation, and endued with a Virtue of destroying the Operation of the Kidneys, *De Vir. Memb. Lib. 2. Cap. 10*. Aroph also signifies a Mandrake. *Ruland. Jahnst*. Some take Aroph to be one of *Paracelsus's* Terms of Art, by which he intends to signify a Lithontriptic Medicine, and have expounded it by *Aroma Philosophorum, Helmont. de Lithiasi, Cap. 7. No. 14*.

ARQUATA, the Name of a Bird mentioned by *Aldrovandus*. It is called τερχιά by *Oppian*. A Wren.

ARQUATUS MORBUS, the same as ICTERUS, which see.

ARQUEBUSADE (Eau de) the same as Aqua Sclopetaria. See AQUA.

ARRAPHON, ἀρράφον, from α Negative, and ῥάπτω, to sew. Without Suture; the Word is applied to the Cranium, when naturally without Sutures. In this Case the Person has sometimes an inveterate and incurable Head-ach.

ARRHEN, ARSEN, ἀρρην, ἀρσεν, Male.

ARRHŒA, ἀρρῶα, ἀρρῶιν, from α Negative, and ῥέω, to flow. The Stoppage of a Flux, and by *Hippocrates* appropriated to the Suppression of the Menstrues; for ἀρρῶα, in *Galen's* Exegesis, is ἐποχὴ ἐμμήνων, "the Stoppage of the Menstrual Flux."

ARRHOSTIA, ἀρρῶστηα, ἀρρῶστια, from α Negative, and ῥώνυμι, to be in sound Health. Infirmary, Weakness; it often signifies a Disease, as in 2 *Aph.* 31. and 3 *Aph.* 5.

ARRHYTHMUS, ἀρρυθμός. See ARYTHMUS.

ARSACUM, the same as ACRAI, which see.

ARSALTOS, the same as ASPHALTOS, which see.

ARSANECK, Arsenic sublimed. *Johnson*.

ARSATUM, the same as ACRAI, which see.

ARSENICUM, Arsenic. Of this there are three Sorts:

ARSENICUM ALBUM, Offic. Ind. Med. 15. *Arsenicum factitium album*, Aldrov. Mus. Metall. 354. *Arsenicum*, Mont. Exot. 12. *Arsenicum album seu crystallinum*, Schrod. 3. 498. *Arsenicum album, Risagallum, quibusdam Realgar, Worm. Mus. 29. Charlt. Foll. 13*. WHITE ARSENIC, or RATSBANE.



# A R S

ARSENICUM FLAVUM, Offic. *Arsenicum factitium flavum*, Aldrov. Mus. Metall. 358. *Arsenicum citrinum seu flavum*, Schrod. 3. 498. *Arsenicum citrinum*, Pharmacopolis. YEL-LOW RATSbane.

ARSENICUM RUBRUM *factitium*, Offic. Woodw. Att. 2. P. 1. p. 50. RED ARSENIC. Dale.

*Arsenic*, properly so called, is a Substance extracted from an Ore found in Saxony and Bohemia, named *Cobalt*. It is of three Kinds, Crystalline, Yellow, and Red; and as this Original of Arsenic, and the way of preparing it, are not commonly known, I shall here shew what is the Nature of Cobalt, and in what manner Arsenic, and the other Substances found with it in the Ore, are extracted, also what are the Kinds of factitious or artificial Arsenic.

German Cobalt of the Shops, *Cadmia Metallica of Agricola*, is a ponderous, hard, fossil Substance, almost black, not unlike Antimony, or some Kinds of Pyrites, emitting a strong sulphureous Smell when burnt, often mixed with Copper, sometimes with Silver. It is dug out of Mines in Saxony, near *Goslar*; in Bohemia, in the Valley of *Joachim*; and in England, in the *Mendip Hills*, in great Quantities. It has so strong a corrosive Quality as sometimes to turn and ulcerate the Hands and Feet of the Miners, and is a deadly Poison for all known Animals. All the three Kinds of Arsenic are extracted from it; and it likewise serves to make *Zaffera*, used by Potters in giving a blue Colour to their Vessels; and the *Encaustum Cœruleum*, or that kind of Blue sometimes used by Painters, and often by Women to mix with their Starch, for whitening and stiffening Linen. The way of making all these, is taught by *Kunkel*, in his Art of making Glass. To this Purpose they put the Cobalt in a calcining reverberatory Furnace, made for that Purpose in such a manner as that the Flame may just graze upon the Ore, and so set it on Fire. The Flame of the Ore is blue, accompanied with a copious Smoke, which is received on the Cieling of the Furnace, and from thence conveyed out through a large Funnel made of Boards, and above an hundred Ells in Length; but the greatest Part of it sticks to the Inside of the Funnel, in form of a whitish Soot; and every six Months the Labourers sweep the Funnel with Brooms, and carefully preserve this Soot, which afterwards serves to make both crystalline, yellow, and red Arsenic.

Crystalline Arsenic is made only by sublimating the Soot in Iron Vessels into an opaque Substance, sometimes white and shining like the *Encaustum Album*, sometimes streaked with red and crystalline Veins.

Yellow Arsenic is made of the same Soot sublimed with common Sulphur, in the Proportion of one Part of Sulphur to ten of Soot. The sublimed Mass is of a yellow Colour, solid like Sulphur, shining, and not altogether opaque, easily broken, but not friable, or easily crumbled into Dust, and distinguishable from Orpiment, by not taking Fire when thrown upon burning Coals, as Orpiment presently does. Red Arsenic is made of the same Soot and Sulphur, mixed with a small Proportion of a metallic Substance, called the *Spuma of Copper*. The sublimed Mass is solid, of a cinnabarine Colour, and opaque.

The calcined Cobalt, after the Evaporation of the Fumes or Smoke, is powdered and calcined again, and this Operation is repeated till the Calcination is judged to be perfect. Then being very finely powdered, it is mixed with two or three times the Quantity of powdered Flint Stones, and moistened with a little Water in large Tubs, where, in a very short time, it becomes a solid firm Mass, called *Zaffera*, as already said, which is used by the Potters, Glass-men, Enamellers, &c.

If two Parts of calcined Cobalt, one Part of Pot-ash, and three of common Sand, be melted together, a vitreous, opaque, bluish Mass is produced, which is ground in Mills to a very fine blue Powder, which is called *Smaltum*, or *Encaustum Cœruleum*, used by Painters, and in washing Linen.

Arsenic consists of an acid Salt, and a kind of mercurial or metallic Substance, which discovers itself when it is distilled in a Retort, mixed with Soap, Suet, Oil, or any fat or oily Substance; for with a strong Degree of Fire the Arsenic will be raised into the Neck of the Retort in a metallic Form, like Antimony. The Sulphur contained in Arsenic is in so small a Proportion, that it does not flame when cast on burning Coals, though Cobalt contains a great Quantity of Sulphur, which consequently has been separated from the arsenical Parts in the Calcination and Deslagration, and so evaporated; but the Smell of Arsenic proves, that some Sulphur still remains in it. Arsenic is very volatile; for if any Quantity of it is put into a Crucible, and set over the Fire, it will presently evaporate in white Fumes, without leaving any Remainder. If melted, stratified, or cemented with Copper, it turns it of a Silver Colour; but, as it impairs its Ductility, this Change of Colour is rendered of no Use.

Arsenic is a powerful Corrosive, and reckoned among the strongest Poisons. When taken inwardly, it causes many bad

# A R T

Symptoms, of which some are common to it with other Poisons; such as Anxieties, Swoonings, Palpitations, a sudden Dejection, or Sinking of the Strength and Spirits, Stupors, Deliriums, convulsive Motions of the Limbs, Palsies, Heat and Corrosion of the Fauces, Thirst, Fevers, Vomiting, Pain in the Stomach, and cold Sweats. Other Symptoms are peculiar to this Poison, such as not only an Erosion of the Stomach, but an Extenuation of it, in such a manner, as that all its Coats, taken together, shall not be thicker than a Poppy-leaf in many Places; and at the same time, the small Intestines are found corroded and perforated; a sudden Swelling and Sphacelation of the Parts of the Body; and, after Death, a more speedy Putrefaction than is observed in other Cases, especially in the Parts of Generation belonging to Men. If Death does not immediately follow, the Patient becomes afflicted with an Hectic Fever, Marasmus, Palsy, Tremors, and sometimes Madness. Some recommend Rock Crystal reduced to an impalpable Powder, as an Antidote against Arsenic; but I should depend much more upon drinking large Quantities of Milk, Oil, or fat Broths, while the Poison remains in the *Primæ Viæ*; but after it has got into the Blood, alexiterial Medicines are to be used, such as *Venice Treacle*, *Mithridate*, *Bezoar*, Powder of *Vipers*, *Contrayerva-root*, and such like, and afterwards a Milk Diet.

Though Arsenic be a quick Poison for both Men and Brutes, it is recommended by some in intermitting Fevers; but, let it be never so much prepared and corrected, its deleterious Qualities are only lessened, never wholly removed; and therefore, though it may be a good Remedy for the present, it will afterwards prove a Poison, and bring on very dismal Symptoms. Arsenic therefore, in my Opinion, is worse than the Fever itself; and among all the Preparations thereof, there is but one which I can recommend, even to be used externally:

Take crude Antimony, yellow Sulphur, and crystalline Arsenic, of each two Ounces; powder and mix them well in a Glass Crucible, and melt them in a gentle Sand-heat, till they come to the Confluence of Pitch; and, the Fire being removed, they will concrete into a Mass of a dark-red Colour, which is to be kept for Use.

This Medicine is only to be applied externally, as being a mild and gentle Caustic, and thought to be endued with a Power of attracting poisonous, or other morbid Matter from the Centre of the Body to the Surface, like a Loadstone; and hence it has the Name of the *Arsenical Magnet*. It is also said to be a powerful Ripener, and is therefore applied to Venereal Buboës, with the *Emplastrum Diachylon Magnum*. It is an Ingredient in the *Emplastrum Magneticum* of *Angelus Sala*, and recommended for maturing and breaking Venereal Buboës, and is thought to draw the pestilential Virus out of them. It is likewise proper in scrophulous Ulcers, which it opens, cleanses and incarns, without the Assistance of any other Ointment. *Geoffroy*.

After giving the Opinion of *Geoffroy* with respect to the internal Use of *Arsenic*, I need not caution the younger Practitioners in Physic to hold as suspected the Advice of *Piscain*, who directs *Arsenic* to be given internally in a Dysentery; and of *Zacutus Lusitanus*, who advises the Use of it in Clysters; for the same Distemper.

*Realgar* also is called *Arsenicum*, and *Sandaracha*. See REALGAR.

ARSIORA, Cetufs. *Johnson*.

ARTABA, *âḡlân* An Egyptian Measure of dry things, containing five Modii (somewhat above five English Pecks). *Galen. de Mensuris*.

ARTANECK, ARTANECH, Arsenic. *Rulandus*.

ARTEMISIA, a celebrated Plant, thus distinguish'd:

*Artemisia*, Offic. Chab. 375. *Artemisia vulgaris*, J. B. 3. 184. Rai Hist. 1. 372. Synop. 4. 190. Park. 90. *Artemisia vulgaris major*, C. B. Pin. 137. *Artemisia latifolia vulgaris major*, Hill. Oxon. 3. 5. *Artemisia vulgaris major, caule & flore purpurascens*, & *albicans*, Tourn. Inst. 460. Boerh. Ind. A. 127. *Artemisia mater herbarum*, Ger. 945. Emac. 1103. MUGWORT. Dale.

It is also called *Mater Herbarum* by *Lobel*, and *Partheniura* by *Apuleius*.

This is also called *Cingulum Sancti Johannis*, because a great many People foolishly imagine, that, if they make a Crown of it, wear it upon St. John's Eve, and throw it into the Fire, mumbling some Verses, they shall for that Year be free from Spectres, Diseases, and Misfortunes. Others call it the *Herba Regia*, *Toxitesia*, *Anactorium*, *Sanguis Hominis*, or *Rapum*. The famous Queen *Artemisia* with this Herb cured several Diseases; for which Reason *Pliny*, L. 25. C. 7. thinks it had her Name bestowed upon it. But others imagine, that it was called *Artemisia* from *Artemis*, that is, *Diana*, since the ancient Pagans believed, that the Goddess *Diana* presided over the Diseases of Women, which they thought could not be cured without this Herb. The Priests, according to *Apuleius*, *Herb.* C. 10.



*C. 10.* called it *Bubastecordium*, that is, the Heart of *Bubastus*. Now *Bubastus* was a Town in *Egypt*, in which the Worship of *Diana*, and of *Dogs*, mightily prevail'd [according to *Hierodot.* in *Euterp. L. 2.*]; to this therefore answers pretty well the *ἀρετμισία*, that is, the *Dianæa* of the *Greeks*; for *Ἀρετμῖς* is *Diana*. It is not material whether the Virtues of this Herb were first discovered by *Dogs*, who are Lovers of it, and, according to *Antonius Musa*, use it as a Medicine against their natural Distempers, or whether they were first found out by *Diana*. See *ATHAN. KIRCHER. Oedip. Egypt. Tom. 3. p. 72.*

*Mugwort* has many large winged Leaves, very much torn, or cut in, even to the middle Rib, green on the upper Side, and white and hoary underneath; of a pretty strong Smell, if rubb'd between the Fingers; the Stalks grow to be two or three Feet high, channell'd, in some Plants of a hoary Green, in others of a purple Colour, full of a white Pith, and having smaller Leaves, growing alternately. The Flowers are small, round *Corymbi*, yellowish, with a Cast of Purple, standing upright, and not hanging down like *Wormwood*. The Root is tough and slender, running assant in the Earth, shooting out many white Fibres. It grows in Hedges, and waste Places, and flowers in *June*.

This Herb is universally known, and is the true *Mother-herb*, or Herb for the Matrix; for the Coldness of which it is an admirable Remedy. It also purifies, warms, and fortifies; it appeases the Pains to which it is subj-ct, and cures the Green-sickness, promotes the Menfes, expels the dead Fætus, and the Secundines, if used either externally or internally. *Helmont* says, that the Tops of *Artemisia* cut, and given to Women, stop the Menfes; but that its inferior Parts cut, and exhibited, promote them. However, all the Diseases of Women, arising from the Matrix and Menfes, may be cured with it. It is the grateful Reliever of Women in Child birth, and of such as labour under any Disorder incident to Women, *Joh. Mich. Eber. de Scorzoner. p. 12.* It also cleanses the Liver when obstructed, purges the Kidneys of Gravel, promotes Urine, and removes the Strangury, and Pains of the Belly. It also resists Poison, and purifies a pestilential Air, *Ambr. Paræus Chir. L. 21. de Pest. C. 25. Casp. Schwenkf. L. 1. Catal. Stip. Silf.* When boiled in Wine or Water, and taken for forty Days successively, one or two Ounces for a Dose, in the Morning before Breakfast, it cures the Dropsy and Jaundice. *C. Raygerus* says, he saw a dropsical Patient thoroughly cured of his Disorder by drinking an Infusion of red *Artemisia* in Wine, *Obs. Med. 51. in Schol.* Its Juice drank with White-wine, or with Water of Maiden-hair, cures the Jaundice, *Jo. Matth. Grad. Pract. p. 2. C. 8.* It is also good for Wounds, and often rank'd among the other vulnerary Herbs. It is also good for the Bites of Serpents and Scorpions, especially when drank in Wine, or apply'd immediately to the Wounds. This Herb is also excellent in gun-shot Wounds; in which Case the Herb is taken fresh, triturated with White-wine, its Juice express'd, and two Spoonfuls of it given twice a Day, pouring at the same time a little of it into the Wound. It also takes away the Pain occasioned by the Heat of the Powder. When the Herb cannot be had fresh, it is usual to take the dry, and boil it in an equal Quantity of Wine and Water, of which they give the Patient to drink, Morning and Night; they also wash the Wound with it. *Th. Tabernæmontanus*, in the Siege of *Oletz*, and in a great many other Campaigns, acquired a very great Reputation by means of this Medicine, and assures us, that it never failed him. Those who have the Gout should eat the Root of this Herb, which will in a short time relieve their Pain. *Abrahamus Scilerus, Consil. inter Græciana, 235.* affirms, that many have been freed from arthritic Pains only by using the Roots of *Artemisia* boiled in their Viçtuals, like Parsley-roots. See also *Arn. Heekard, Thef. Pharmaceut. L. 3. C. 7.* *Artemisia* beat with Axungia and Vinegar cures Pains of the Thighs, if apply'd to them, *P. Bayr. L. 18. Pr. C. 1. and 6. C. V. Schneider. Lib. de Catarib. Specialiff. Tr. de Arthrit. & Podagr. p. 848.* Some others, as *Crato, L. 2. Conf. 26. Schenck. L. 5. Obs. Med. Solenander, Conf. Med. 24. S. 4.* advise, in order to remove Pains in the Feet, to bathe or foment them with a Decoction of this Herb. For this Purpose also *Ant. Mizaldus* commends the *Oleum Artemisæ, Cent. 5. Memor. Aph. 79.* An old Woman is, by *Simon Pauli, in Quadr. Ret. Class. 3.* said to have thoroughly carried off cedematous Swellings in both her Knees, by applying to them folded Cloths, fumigated with *Artemisia*. This Herb, when boiled in Wine, with Chamomile-flowers, those of Sage and Rosemary, fortifies and restores maimed and refrigerated Limbs, if fomented with the Preparation. It is said, that if People who travel on Foot put some of this Herb into their Shoes, they will not so soon become weary, as they would otherwise do. Travellers who carry *Artemisia* along with them, will not become weary on their Journey, says *Pliny, N. H. L. 26. C. 15.* and *P. Bayr. L. 24. C. 13.* But *Matthioli* on this Occasion observes, *Let who will believe it; for I cannot.* *Theodor. Tabernæmontanus* says, he believes it very readily, provided the Journey be very

short. *Casp. Hoffman, L. 2. de Med. Offic. Cap. 22. Sect. 4.* mentions it as a Piece of Superstition; and wittily says, he will not soon weary, who has in his Journey *Beyfus*, which is the German Name of *Artemisia*, and signifies at the same time another Foot; that is, adds he, the four Feet of a strong Horse. But though this Opinion favours of Superstition, yet 'tis true, that a Bath of *Artemisia* restores Strength and Soundness to Feet weakened and galled by Travelling. See *Gorop. Becan. Herma-then. Lib. 7. p. 135. David Frolich. Viator. P. 1. L. 2. C. 7. Honorat. Taber. de Plantis, Tr. 1. L. 2. Chr. Fr. Paulin. Part 1. 726. Simon Paul, Quæst. Botan. L. C. Avissenna* confirms this, who asserts, that it is an Herb of a cold Nature, and is of wonderful Efficacy against Weariness. *Philadæmon, L. de Fuga Isidis*, also asserts, that this was used by *Isis* against Weariness, when wandering through *Egypt* in Quest of the Body of *Osiris*. Some superstitious People pull up this Herb, and dig under it at a certain Time and Hour, especially on St. *John's* Eve, for Coals, which they use against the Fever, the Plague, the Falling Sickness, Witchcraft, and other Disorders, tying at the same time the Herb about their Necks. The *Wittenberg Pharmacopæia* affirms, *p. 22.* that if on St. *John's* Eve, before the Rising of the Sun, People dig under the old Trunk of red *Artemisia*, they will find a black Coal, which, if hung about the Neck, is good against the Falling Sickness. *Joh. Chemnitius, Ind. Plantar. Brunsvic. p. 17.* mentions its being sold in some Apothecaries Shops as an Amulet to cure Fevers. *Tragus*, on the contrary, *Part 2. Hebr. C. 113.* and *Jo. Bauhine, Hist. Plant. Unvers. L. 26. C. 78.* call these Coals the Stones of Fools, because they are sought for by weak and foolish People; but *Mich. Etmüller, Comment. in Schrod. Pharm. Sect. 1. & in Ludovic. Pharmac. Tit. 14.* and in *Colleg. Prætic. C. de Epileps. P. M. 887.* informs us, that there is nothing either fabulous or superstitious in what is reported of that Coal; and that it was an infallible Remedy against the Epilepsy, which a certain Woman in *Leipsic* had found verified upon her own Son. *Christopher Helwig, in Consil. Medic. de Peste, p. 139.* says, For my share, I look upon this Stone as something miraculous: However, I will not venture to assert, that there is no such thing, since a great many People, who cannot be charg'd with Folly, have given Accounts of very surprising Effects produced by it. *Fernelius* is, in my Opinion, far from being a Fool, yet in his *Consil. pro Epileptica præscript.* he commends that Stone hung about the Neck against the Epilepsy. See also *Anton. Mizald. Cent. 3. Mem. Aph. 10. Casp. Bauhin. in Matthiol. p. 619. Ephem. N. C. Dec. 3. An. 9. and 10. Obs. 128. Ofw. Gabelkhever, p. m. 24. H. Petrei Dissert. Harm. L. 1. Diff. 6. Sect. 53. Fr. Joel, Oper. Med. Lib. 1. Sect. 3. de Epilepsia. Fr. Decker, Not. ad Prax. Med. Pauli Barbett, L. 1. C. 1. Th. Mayern. Prax. Med. L. 1. C. 3. G. H. Velsch. Chil. 1. Exot. Cur. 505. & Illegatiff. 2. Obs. Med. 40.* The Roots of *Artemisia* may be kept and preserved for a great many Years. In some foreign Apothecaries Shops we find a Water distilled from this Herb; we there also find a Syrup, a Conserve, an Extract, and a Salt of it. The distill'd Water is serviceable to Women in Child-bed; expels the Fætus, whether dead or alive; brings away the After-birth, promotes the monthly Evacuations when stop'd, purges the Kidneys and Urinary Passages, promotes Urine, and expels the Stone; cures the Jaundice, and is good against the Dropsy. The Syrup and Conserve are used for all Weakness, Coldness, Impurities, and Pains in the Matrix; they also promote the Menfes, and facilitate Child-birth. The Extract dissolves Stones, and carries off Suppressions of Urine, *Andr. Zaigler, Pharm. Spag. p. 87.* The Conserve is also good to purify and fortify the Matrix: It is likewise good against the Chlorosis. *Zacutus Lusitanus, Lib. 2. Obs. 99. Prax. Adm.* cured a Chlorosis of ten Years standing with it. Its Salt is, among other things, an excellent Antidote against the Plague. *Ambr. Paræus, L. 21. Chir. C. 25. Conrad. Khunrab. Medull. Destill. p. 2. C. 7. Joh. de Cuba, in Hort. San.* makes mention of *Artemisia*, and says, that if any one has this Herb in his House, the Devil can do him no Harm. If any one place a Piece of this Herb above the Door of a House, nothing unlucky can befall that House. See also *Discor. L. 3. C. 127. Joh. Hier. de Præst. Dæmon. L. 5. 21. Artemisia* hung up in the Entry of a House banishes all Witches, *P. Bayr. L. 16. Gr. C. 3. Fernelius* from *Pliny, N. H. L. 25. C. 10.* informs us, that *Artemisia* held in the Hand banishes wild Beasts and Devils. The Down of *Artemisia* is the Moxa of the Germans, *Ephem. N. C. Dec. 2. An. 1. Obs. 6.*

The fabulous Accounts above related concerning the Virtues of *Artemisia*, in banishing Devils, Witches, and Spectres, I have quoted only with a View of shewing the great Veneration which People have had for this Plant, amounting even to Superstition.

*Mugwort* has a little herby, saltish Taste, and gives a faint red Colour to the blue Paper. The Salt which is naturally in this Plant, probably resembles Sal Ammoniac, but is united with a great deal of Sulphur and Earth; for by the Chymical Analysis we obtain from *Mugwort*, beside several acid Liquors,



some concreted, volatile, and very lixivial fixed Salt, and a great deal of Sulphur and Earth. All these Principles render this Plant very aperitive, and proper to regulate and restore the Menses. *Martyn's Tournefort.*

*Dioscorides* takes Notice of another ARTEMISIA, which he calls *λεπτόφυλλον*, which is, I suppose, the *Artemisia tenuifolia*, or *Abrotanum Campestre*. See ABROTANUM.

There is another Species of Artemisia which grows in China, from which the Moxa celebrated by Sir William Temple is procur'd, by taking out the gross Fibres of the dry'd Leaves, and rubbing these Leaves with the Hands, till the green Part crumbles away, and the lanuginous Fibres alone remain. Dale calls this Plant *Artemisia*.

*Artemisia Chinensis*, *cujus mollugo Moxa dicitur*, Pluk. Phytog. Tab. 15. Almag. 50. Hist. Oxon. 3. 5. *Artemisia orientalis vulgaris facie*, Act. Philosoph. Lond. N<sup>o</sup> 276. p. 1020. *Mussa pattree*, Malab. Moxa, Kempf. Ed. Angl. App. 27. Amanit. Exot. 589. 600. *An Ytzeuinpatli*, Hern. MUGWORT OF CHINA.

ARTEMISION. The Name of a Month among the Macedonians, in the Beginning of which happen'd the vernal Equinox. *Gal. Com. 1. in Lib. 1. Epid.*

ARTEMIDIUS DIANIO. The Inventor of a Dentifrice against the Stridor Dentium, which consisted of equal Quantities of white Bread, old and dry enough to grate; Salt, Pepper, Indian-leaf, Costus, and Hartshorn, reduced to a very fine Powder. *Marcellus Empiricus, Cap. 13.*

ARTEMONIUM, *ἀρτεμόνιον*. The Name of a Collyrium described by Galen, *Lib. 4. de C. M. S. L. Cap. 7.*

ARTENNA. The Name of an aquatic web-footed Bird, called also *Diomedea*, because found in the *Diomedean* Isles, now called *Tremiti*. *Castellus.*

ARTERIA, *ἀρτηρία*, an Artery.

*Ἀρτηρία*, *Arteria*, in *Hippocrates*, generally signifies what we call the *Aspera Arteria*, that is, the Tube which conveys the Air to the Lungs. However, though this Author was utterly ignorant of the true Sources and Uses of the Arteries, which he confounds with the Veins, it may be of some Importance to the perfect Understanding of his Works, to specify his Notions of the Blood-vessels.

*Hippocrates*, in one Passage, [*Lib. de Alimento*] acknowledges, That the Veins proceed from the Liver, which is the Origin and Root of them, as the Heart is of the Arteries: And elsewhere he maintains, that the Veins and Arteries proceed equally from the Heart [*Lib. de Carnibus*]. "There are, says he, two hollow Veins which proceed from the Heart, one of which is call'd the Artery, and the other the Hollow Vein." In the Days of *Hippocrates* the Name of VEIN was indifferently apply'd to all Blood-vessels; and the Word Artery [*Ἀρτηρία*, ἀπὸ τοῦ τὸν ἀερα τρεῖν, because it contains Air] properly denoted the *Aspera Arteria*, or Pipe of the Lungs. *Hippocrates* also gives the Name of Veins to the Ureters, and even to the Nerves. Besides these, there are few Passages in which he makes a formal Distinction betwixt Arteries and Veins; which Circumstance may render the Books, or at least the particular Passages of them, in which this Distinction is made, suspected. "The Artery," adds he immediately after, includes more Heat than the hollow Vein, and is the Reservoir of the Spirit (*ταμιεύει τὸ πνεῦμα*). "There are as yet other Veins in the Body besides these two. As to that which has the largest Cavity, and is fixed to the Heart, it runs through all the Belly and Diaphragm, and sends a Branch to each Kidney, and at the Loins it divides, and sends Branches to other Parts, and to both Legs. Above the Heart, also this Vein divides itself to the Right and the Left, and, mounting to the Head, distributes itself to each Temple. To this may be joined other Veins, which are also very large; but, in one Word, all the several Veins which are dispersed over the whole Body, proceed from the Hollow Vein and the Artery."

Here are already two Opinions concerning the Origin of the Veins and Arteries; and there is still a third found in three other Passages of the Works of the same *Hippocrates*, both with regard to the Origin and the Distribution of the Veins [*Lib. de Offium Natura*, *Lib. de Natura Humana*, & *Lib. de Locis in Homine*]. "The largest Veins of the human Body, says he, are disposed in this manner: There are four Pairs of them in all. The first Pair rise from behind the Head, and, descending by the exterior Part of the Nape of the Neck on each Side the Spine, reach the Hip and Thighs; and, passing thence through the Legs, they reach the external Ankle-bones and Feet. For this Reason, in Pains of the Back or Hip, Bleeding in the Ham, and in the external Ankle, affords great Relief. The second Pair, coming also from the Head, descend from the Ears along the Neck; they are called the Jugular Veins, and follow the Spine in its inner Part, till, arriving at the Loins, they branch out on both hands to the Testicles, the Thighs, and the Insides of the Hams, and pass thence through the internal Ancles to the inner Sides of the Feet: For this Reason, in Pains of the Testicles and Loins, Bleeding in the internal Veins of the Ham and Ankle is very useful. The third Pair rise

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"from the Temples, and, passing from the Neck towards the Shoulders, reach the Lungs; and from thence passing on one Side from the Right to the Left, run along under the Breasts to join the Spleen and Kidneys; and on the other Side passing from the Left to the Right, run also by the Breasts to the Liver and Kidneys; and at last they terminate in the strait Intestine. The fourth Pair, rising from the Forehead and Eyes, pass below the Lungs and Clavicles, and thence by the superior Part of the Arm, reach the Elbow, the Hands, and Fingers; and they return again from the Fingers by the Palm of the Hand, by the Elbow, and by the under Side of the Arm, in order to reach the Armpits; and by the superior Part of the Ribs on one Side to the Spleen, and on the other to the Liver. These two Branches, passing beyond the Belly, terminate at last at the private Parts."

As a *Salvo* for the Contradiction betwixt this Passage and the preceding, it may be alleged, that the Book *De Offium Natura*, was not written by *Hippocrates*, but by *Polybius*, his Son-in-law. Neither *Galen* nor *Erotian*, have made any Mention of it among the Books written by *Hippocrates*; at least, they have not spoken of its Title, though they seem to have explained some Words that occur in the same Book. There is also a Passage of *Aristotle*, [*De Generat. Animal. Lib. 3. Cap. 3.*] in which that Philosopher, talking of the Origin and Distribution of the Veins, and relating the Sentiments of several Physicians with regard to that Point, cites the very Words of the Book *De Natura Offium*, which we have translated, and cites them as being written by *Polybius*. This Proof, though apparently sufficient, does not remove the Whole of the Difficulty, because the same Words are found in the Book *De Natura Humana*, which *Galen* strongly maintains to be written by *Hippocrates*, pretending to prove it by the Authority of *Plato*, who, as he says, has quoted some Passages of it, as belonging to *Hippocrates*, though others have ascribed that Book to *Democritus*. The same *Galen* [*De Hippocratis & Platonis Decretis, Lib. 6. Cap. 3.*] nevertheless denies, that this last Opinion, touching the Origin and Division of the Veins, was embraced either by *Hippocrates* or *Polybius*; and assures us, that it has been foisted into the Text, which, by the way, is not very probable, since we find the same Opinion in the Book *De Locis in Homine*.

There is another Difficulty with regard to the Book *De Carnibus*, whence I have taken what I said about the Veins and Arteries proceeding from the Heart. *Aristotle*, in the Passage just cited, after having observed, that almost all Physicians agreed with *Polybius* to make the Veins proceed from the Head, concludes, that they were all in the wrong, not knowing that it was from the Heart, and not from the Head they rise. If *Hippocrates* is the Author of the Book *De Carnibus*, where this Sentiment of *Aristotle* is clearly establish'd, what Appearance is there, that this Philosopher should have been ignorant of it? And why might he not have read the Writings of *Hippocrates*, as well as those of *Polybius*? One might infer from this, that no more belongs to *Hippocrates*, than that *De Natura Offium*. But it may be, *Aristotle* has in that Passage quoted *Polybius*, or even *Synecesis* of Cyprus, or *Diogenes* of Apollonia, Physicians of small Reputation, in Comparison of *Hippocrates*, rather than *Hippocrates* himself, who is only mentioned in one Passage of all his Works [*Politicor. Lib. 7. Cap. 4.*]. It may be, I say, he has omitted quoting him, out of a Principle of Envy, or Ill-will; tho' he seems to speak advantageously of him in the Passage referr'd to. *Plato* has behav'd better, with regard to this ancient Physician, having, in several Passages, made very honourable Mention of him. It is also possible, that the Book we are talking of may not have been written by *Hippocrates*; the Title of it, at least, is not to be found in the List which *Erotian* has given of his Works. *Le Clerc.*

The Arteries are conical Channels, which convey the Blood from the Heart to all the Parts of the Body.

Each Artery is composed of three Coats, of which the first seems to be a Web of fine Blood-vessels and Nerves, for the nourishing of the Coats of the Artery. The second is made up of circular, or rather spiral Fibres, of which there are more or fewer Strata, according to the Bigness of the Artery. These Fibres have a strong Elasticity, by which they contract themselves with some Force, when the Power, by which they have been stretched out, ceases. The third and inmost Coat is a fine, dense, transparent Membrane, which keeps the Blood within its Channels, which otherwise, upon the Dilatation of the Artery, would easily separate the spiral Fibres from one another. As the Arteries grow smaller and smaller, so these Coats grow thinner and thinner, and the Coats of the Veins seem to be only a Continuation of the Coats of the capillary Arteries.

The Structure of the Arteries being thus premised, it will be easy to account for their Pulse. When the Left Ventricle of the Heart contracts, and throws its Blood into the great Artery, the Blood in the Artery is not only thrust forwards towards the Extremities, but the Channel of the Artery is likewise dilated; because Fluids, when they are pressed, press again to all hands, and



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and their Pressure is always perpendicular to the Sides of the containing Vessels ; but the Coats of the Artery, by any small Impetus, may be distended ; therefore, upon the Contraction of the Heart, the Blood from the Left Ventricle will not only press the Blood in the Artery forwards, but both together will distend the Sides of the Artery. When the Impetus of the Blood against the Sides of the Artery ceases, that is, when the Left Ventricle ceases to contract, then the spiral Fibres of the Artery, by their natural Elasticity, return again to their former State, and contract the Channel of the Artery till it is again dilated by the Systole of the Heart. This Diastole of the Artery is its Pulse, and the Time the spiral Fibres are returning to their natural State, is the Distance between two Pulses. This Pulse is in all the Arteries of the Body at the same time ; for whilst the Blood is thrust out of the Heart into the Artery, the Artery being full, the Blood must move in all the Arteries at the same time ; and because the Arteries are conical, and the Blood moves from the Basis of the Cone to the Apex, therefore the Blood must strike against the Sides of the Vessels, and consequently every Point of the Artery must be dilated at the same time that the Blood is thrown out of the Left Ventricle of the Heart ; and as soon as the Elasticity of the spiral Fibres can overcome the Impetus of the Blood, the Arteries are again contracted. Thus there are two Causes, which operating alternately, keep the Blood in a continual Motion, viz. the Heart and Fibres of the Arteries : But because the one is stronger than the other, therefore, though the Blood runs continually, yet, when the Artery is open'd, it is seen to move *per saltum*. *Keil's Anatomy.*

## Distribution of the ARTERIES, according to WINSLOW.

The Heart throws the Blood into two great Arteries ; one of which is named *Aorta*, the other *Arteria Pulmonalis*.

The *Aorta* distributes the Blood to all the Parts of the Body, for the Nourishment of the Parts, and for the Secretion of different Fluids.

The *Arteria Pulmonalis* carries the venous Blood thro' all the capillary Vessels of the Lungs.

Both these great or general Arteries are subdivided into several Branches, and into a great Number of Ramifications. For an Account of the Pulmonary Artery, see PULMONES.

## Of the AORTA.

The Basis of the Heart being very much inclined to the Right Side, and turned a little backward, the *Aorta*, *Tab. 5. Fig. 1.* goes out from it in a direct Course, nearly over-against the fourth Vertebra of the Back. Its Course is direct, with respect to the Heart ; but, with respect to all the rest of the Body, it ascends obliquely from the Left to the Right-hand, and from before, backward.

Soon after this, it bends obliquely from the Right-hand to the Left, and from before, backward, reaching as high as the second Vertebra of the Back ; from whence it runs down again, in the same Direction, forming an oblique Arch. The Middle of this Arch is almost opposite to the Right Side or Edge of the superior Portion of the Sternum, between the cartilaginous Extremities or sternal Articulations of the first two Ribs.

From thence the *Aorta* descends in a direct Course along the anterior Part of the Vertebrae, all the way to the Os Sacrum, lying a little towards the Left-hand, and there it terminates in two subordinate or collateral Trunks, call'd *Arteriae Iliacae*, *Tab. 5. Fig. 53. 53.*

The *Aorta* is by Anatomists generally divided into the *Aorta Ascendens*, and the *Aorta Descendens*, tho' both are but one and the same Trunk. It is termed *Ascendens*, from where it leaves the Heart, to the Extremity of the great Curvature or Arch. The remaining Part of this Trunk, from the Arch to the Os Sacrum or Bifurcation, at 28. *Tab. 5.* is named *Descendens*.

The *Aorta descendens* is farther divided into the superior and inferior Portions ; the first taking in all that lies above the Diaphragm ; the other, all that lies between the Diaphragm and the Bifurcation.

The *Aorta ascendens* is principally distributed to Part of the Thorax, to the Head and upper Extremities. The superior Portion of the *Aorta descendens* furnishes the rest of the Thorax ; the inferior Portion furnishes the Abdomen and lower Extremities.

The great Trunk of the *Aorta* thro' its whole Length sends off immediately several Branches, which are afterwards differently ramify'd ; and these Arterial Branches may be look'd upon as so many Trunks, with respect to the other Ramifications, which again may be consider'd as small Trunks, with regard to the Ramifications that they send off.

The Branches which go out immediately from the Trunk of the *Aorta*, may be term'd Original or Capital Branches ; and of these, some are large, and others very small.

The large capital Branches of the *Aorta* are these : Two *Arteriae Subclaviae* ; two *Carotides* ; one *Celiacæ* ; one *Mesen-*

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*terica Superior* ; two *Renales*, formerly termed *Emulgentes* ; one *Mesenterica Inferior* ; and two *Iliacæ*.

The small capital Branches are chiefly the *Arteriae Coronariae Cordis*, *Bronchiales*, *Oesophagææ*, *Intercostales*, *Diaphragmaticæ Inferiores*, *Spermaticeæ*, *Lumbares*, and *Sacræ*.

These capital Branches or Arteries are for the most part disposed in Pairs ; there being none in odd Numbers but the *Cæliaca*, the two *Mesentericæ*, some of the *Oesophagææ*, the *Bronchiales*, and sometimes the *Sacræ*.

The Ramifications of each capital Branch are in uneven Numbers, with respect to their particular Trunks ; but with respect to the Ramifications of the like capital Trunks on the other Side, they are disposed in Pairs. Among the Branches there are in odd Numbers none but the *Arteria Sacra*, when it is single, and the *Oesophagææ*, the Ramifications of which are, however, sometimes found in Pairs.

Before I enter upon the Detail of each of these particular Arteries, many of which have proper Names, it will be convenient to give a short View of the Disposition and Distribution of the principal Arterial Branches, as a general Plan, to which all the Particularities of each Distribution may afterwards be referred ; for I have found by Experience, that the common Method of describing the Course of all the Ramifications of these Vessels, without having first given a general Idea of the principal Branches, is very troublesome to Beginners.

The *Aorta* gives Rise to two small Arteries, called *Coronariae Cordis*, which go to the Heart and its Auricles ; one of which is situated anteriorly, the other posteriorly, and sometimes they are three in Number. See *Tab. 5. Fig. 2. 2.*

From the upper Part of the Arch or Curvature, the *Aorta* sends out commonly three, sometimes four, large capital Branches, their Origins being very near each other. When there are four, the two Middle Branches are termed *Arteriae Carotides*, *Tab. 5. Fig. 5. 5.* the other two *Subclaviae*, *Tab. 5. Fig. 4. 4.* and both are distinguish'd into Right and Left.

When there are but three Branches, which is ofteneft the Case, the first is a short Trunk, common to the Right Subclavian and Carotid ; the second is the Left Subclavian, and the third the Left Carotid. Sometimes, tho' very rarely, these four Arteries unite in two Trunks.

The Origin of the Left Subclavian, terminates the *Aorta Ascendens* ; but I have sometimes observed four Branches, the first three of which were those already mentioned, and the fourth a distinct Trunk of the Left vertebral Artery.

It must be observed, that these large Branches, which arise from the Curvature of the *Aorta*, are situated obliquely ; the first, or that which is most on the Right-hand, lying more forward than the rest ; and the last, which is most on the Left-hand, more backward. The first and second, or middle Branches, are generally in the middle of the Arch, and the third lower down. Sometimes the first alone is in the middle ; all which Varieties depend on the Obliquity of the Arch.

The *Carotid Arteries* run up directly to the Head, each of them being first divided into two, one external, the other internal. The external Artery, *Tab. 5. Fig. 9, 10, 11, 12.* goes chiefly to the outer Parts of the Head, and Dura Mater, or first Covering of the Brain, to which it passes thro' a Foramen of the Cranium at B, B, and others. The internal enters the Cranium thro' the bony Canal of the Os Petrosum ; and is distributed thro' the Brain by a great Number of Ramifications, *Tab. 5. Fig. 18. 18.*

The Subclavian Arteries separate laterally, and almost transversely, each toward that Side on which it lies, behind and under the Claviculae, from whence they have their Name. The Left seems to be shorter, and runs more obliquely, than the Right.

The Subclavian on each Side terminates at the upper Edge of the first Rib, between the lower Insertions of the first Scalenus Muscle ; and there, as it goes out of the Thorax, takes the Name of *Arteria Axillaris*.

During this Course of the Subclavian Artery, taking in the common Trunk of the Right Subclavian, several Arteries arise from it, viz. the *Mammaria Interna*, *Mediastina*, *Pericardica*, *Diaphragmatica minor five superior*, *Thymica*, and *Trachealis*.

The *Thymica* and *Trachealis* on each Side are in some Subjects only Branches of one small Trunk, which springs from the common Trunk of the Right Subclavian and Carotid.

They are generally small Arteries, which run sometimes separate, and sometimes partly separate, and partly joined.

The Subclavian sends off likewise the *Vertebrales*, *Cervicales*, and sometimes several of the upper *Intercostales*.

The *Axillary Artery*, which is only a Continuation of the Subclavian, from where it goes out of the Thorax to the Axilla, detaches chiefly the *Mammaria externa*, or *Thoracica superior*, *Thoracica inferior*, *Scapularis externa*, *Scapularis interna* ; *Humeralis*, or *Muscularis*, &c. Afterwards it is continued by different Ramifications, and under different Names, over the whole Arm, all the Way to the Ends of the Fingers.

The superior Portion of the *Aorta descendens* gives off the *Arteriae Bronchiales*, which arise sometimes by a small common Trunk



Trunk, sometimes separate, and sometimes do not come immediately from the *Aorta*. It next sends off the *Oesophagææ*, which may be looked upon as *Mediastinæ Posteriores*; and then the *Intercostales* from its posterior Part, which in some Subjects come all from this Portion of the *Aorta*; in others only the lowest eight or nine.

The small anterior *Arteries* here mentioned are generally, at their Origins, single, and in uneven Numbers; but they divide soon after toward the Right and Left.

The inferior Portion of the descending *Aorta*, as it passes thro' the Diaphragm, gives off the *Diaphragmaticæ inferiores*, or *Phrenicæ*; which, however, do not always come immediately from the *Aorta*: Afterwards it sends off several Branches anteriorly, posteriorly, and laterally.

The anterior Branches are the *Coeliacæ*, which supplies the Stomach, Liver, Spleen, Pancreas, &c. the *Mesenterica superior*, which goes chiefly to the Mesentery, to the small Intestines, and to that Part of the great Intestines, which lies on the Right Side of the Abdomen; the *Mesenterica inferior*, which goes to the great Intestines on the Left Side, and produces the *Hæmorrhoidalis interna*; and, lastly, the Right and Left *Arteriæ Spermaticæ*, or Spermatic Arteries.

The posterior Branches are the *Arteriæ Lumbares*, of which there are several Pairs, and the *Sacræ*, which do not always come from the Trunk of the *Aorta*.

The lateral Branches are the *Capsulares* and *Adiposæ*, the Origin of which often varies; the *Renales*, formerly termed *Emulgentes*; and the *Iliacæ*, which terminate the *Aorta* by the Bifurcation already mentioned.

The *Iliac Artery* on each Side is commonly divided into the external or anterior, and internal or posterior.

The internal *Iliaca* is likewise named *Arteria Hypogastrica*; and its Ramifications are distributed to the Viscera contained in the Pelvis, and to the neighbouring Parts, both internal and external.

The *Iliaca externa*, which is the true Continuation of the Iliac Trunk, and alone deserves that Name, goes on to the Inguen, and then out of the Abdomen under the Ligamentum Fallopii, having first detached the *Epigastrica*, which goes to the Musculi Abdominis Recti: Having quitted the Abdomen, it commences *Arteria Cruralis*, which runs down upon the Thigh, and is distributed by many Branches and Ramifications to all the lower Extremity.

I shall now go on to examine particularly all the capital or original Branches of the *Aorta*, from their Origin to the Entry of them, and of their Ramifications, into all the Parts of the Body, and all the different Viscera and Organs.

#### The CARDIAC or CORONARY ARTERIES of the HEART.

The *Cardiac* or *Coronary Arteries* of the Heart, *Tab. 5. Fig. 2.* arise from the *Aorta* immediately on its leaving the Heart. They are two in Number, and, according to the natural Situation of the Heart, one is rather superior than anterior; the other rather inferior than posterior.

They go out near the two Sides of the pulmonary *Arteries*, which having first surrounded, they afterward run upon the Basis of the Heart, in form of a kind of Crown or Garland, from whence they are called *Coronariæ*, and then pursue the superficial Traces of the Union of the two Ventricles, from the Basis of the Heart to the Apex.

They send communicating Branches to each other, which are afterward lost in the Substance of the Heart.

We sometimes meet with a third *Coronary Artery*, which arises from the *Aorta* more backward, and is spent on the posterior or lower Side of the Heart.

#### The CAROTID ARTERIES.

The *Carotid Arteries*, *Tab. 5. Fig. 5.* are commonly demonstrated after the Subclavian; but I chuse to describe them first, that I may afterwards be able to pursue the *Arteries* of the Thorax arising partly from the *Subclaviæ*, and partly from the *Aorta descendens*, without Interruption.

These *Arteries* are two in Number, one called the Right *Carotid*, the other the Left. They arise near each other, from the Curvature or Arch of the *Aorta*; the Left immediately, the Right most commonly from the Trunk of the *Subclavia* on the same Side, as has been already observed.

They run upon each Side of the *Trachea Arteria*, between it and the internal Jugular Vein, as high as the Larynx, without any Ramification. During this Course, therefore, they may be named *Carotid Trunks*, or general, common, and original *Carotids*. Each of these Trunks is afterwards ramified in the following manner.

The Trunk, having reached as high as the Larynx, is divided into two large Branches, or particular *Carotids*, one named *external*, the other *internal*, because the first goes chiefly to the external Parts of the Head; the second enters the Cranium, and is distributed to the Brain.

The external *Carotid* is anterior, the internal posterior; and the external is even situated more inward, and nearer the La-

ryn timer, than the other; but the common Names may still be retained, as being taken not from their Situation, but from their Distribution.

#### The EXTERNAL CAROTID ARTERIES.

The external *Carotid* is the smallest, and yet appears by its Direction to be a Continuation of the common Trunk. It runs insensibly outward, between the external Angle of the lower Jaw, and the parotid Gland, which it supplies as it passes. Afterwards it ascends on the Foreside of the Ear, and ends in the Temples.

In this Course it sends off several Branches, which may well enough be divided into anterior or internal, and posterior or external; and the principal Branches of each kind are these.

The first anterior or internal Branch goes out from the very Origin of the *Carotid* on the Inside; and having presently afterwards taken a little Turn, and sent off Branches to the Jugular Glands near it, to the Fat and Skin, it runs transversely, and is distributed to the Glandulæ Thyroidææ, and to the Muscles and other Parts of the Larynx; for which Reason I name it *Laryngææ* or *Gutturæ superior*. It likewise sends some Branches to the Pharynx and Muscles of the Os Hyoides.

The second anterior Branch passes over the nearest Cornu of the Os Hyoides to the Muscles of that Bone, and of the Tongue, and to the Glandulæ Sublinguales; afterwards passing before the Cornu of the Os Hyoides, it loses itself in the Tongue, from whence it has been called *Arteria Sublingualis*; and it is the same Artery which others have named *Ranina*.

The third Branch, or *Arteria maxillaris inferior*, goes to the Maxillary Gland, to the Styloide and Malleoide Muscles, to the Parotid and Sublingual Glands, to the Muscles of the Pharynx, and to the small Flexors of the Head,

The fourth Branch, which I name *Arteria maxillaris externa*, passes anteriorly on the Masseter Muscle, and middle of the lower Jaw near the Chin: Afterwards it runs under the Musculus Triangularis Labiorum, which it supplies as well as the Buccinator, and the Quadratus Mentis.

It sends off a particular Branch, very much contorted, which divides at the angular Commissure of the Lips, and, running in the same manner along the superior and inferior Portions of the Musculus Orbicularis, it communicates on both Sides with its Fellow, and thereby forms a kind of *Arteria Coronaria Labiorum*.

Afterwards it ascends towards the Nares, and is distributed to the Muscles, Cartilages, and other Parts of the Nose, sending down some Twigs, which communicate with the *Coronary Artery* of the Lips. Lastly, it reaches the great Angle of the Eye, and is ramify'd and lost on the Musculus Orbicularis Palpebrarum, Superciliaris, and Frontalis. Thro' all this Course, it is named *Arteria Angularis*.

The fifth Branch arises over-against the Condyle of the lower Jaw, and, as it is very considerable, I call it *Maxillaris Interna*. It passes behind the Condyle, and, having given off a Twig among the Musculi Pterygoidei, it is divided into three principal Branches.

The first Branch goes thro' the inferior Orbitary, or Sphenomaxillary Fissure, to the Orbit, after having supply'd the Musculi Peristaphylini, and the glandulous Membrane of the posterior Nares, thro' the Foramen Spheno-palatinum. I name this Branch *Spheno-maxillaris*.

It is distributed inferiorly and laterally to the Parts contain'd in the Orbit, and detaches a small subaltern Branch through the Extremity of the superior Orbitary or Sphenoidal Fissure, which enters the Cranium, and is spent upon the Dura Mater, communicating there with the other Artery of the Dura Mater, which enters by the Foramen Spinale of the Sphenoidal Bone.

It sends off likewise another subaltern Branch, which passes thro' the posterior Opening of the Orbitary Canal, and, having furnished the Maxillary Sinus, and the Teeth, goes out by the inferior Orbitary Hole, and on the Cheek communicates with the *Angular Artery*.

The second of the three Branches runs thro' the Canal of the lower Jaw, and, being distributed to the Alveoli and Teeth, goes out at the Hole near the Chin, and loses itself in the neighbouring Muscles, communicating with the Ram of the *Arteria Maxillaris externa*.

The third Branch of the *Maxillaris interna* runs up between the internal and external *Carotids*, passes thro' the Foramen Spinale of the Sphenoidal Bone, and is distributed to the Dura Mater by several Ramifications, which run forward, upward, and backward; the uppermost communicating with those on the other Side, above the longitudinal Sinus of the Dura Mater.

This Artery of the Dura Mater, which may be termed *Spheno-spinalis*, to distinguish it from those that go to the same Part by another Course, arises sometimes from the Trunk of the



the external *Carotid*, behind the Origin of the *Laryngæa* or *Gutturalis superior*, and sometimes from the first Branch of the *Maxillaris interna*, just before it enters the *Spheno-maxillary Fissure*.

The sixth anterior or internal Branch, which is very small, is spent on the *Musculus Masseter*.

The first external or posterior Branch is named *Arteria Occipitalis*, *Tab. 5. Fig. 11. 11.* It passes obliquely before the internal *Jugular Vein*; and, having given Twigs to the *Musculus Stylo-hyoidæus*, *Stylo-glossus*, and *Digastricus*, it runs between the *Styloide* and *Mastoide Apophyses*, along the *Mastoide Groove*, and goes to the *Muscles* and *Integuments* which cover the *Os Occipitis*, turning several times, in an undulating manner, as it ascends backward.

It communicates, by a descending Branch, with the *Vertebral* and *Cervical Arteries*, as has been already said, near the Top of the Head: It communicates likewise with the posterior Branches of the *Temporal Artery*; and it sends a Branch to the *Foramen Mastoideum*.

The second external Branch spreads itself on the outward Ear, by a great many small Twigs on each Side; several of which run inward, and furnish the *Cartilages*, *Meatus Auditorius*, *Skin* of the *Tympanum*, and internal Ear.

The Trunk of the external *Carotid* ascends afterward above the *Zygoma*, passing between the Angle of the lower Jaw and *Parotid Gland*, and forms the *Temporal Artery*, which divides into an anterior, middle, and posterior Branch.

The anterior branch of the *Temporal Artery* goes to the *Musculus Frontalis*, communicates with the *Arteria Angularis*, and sometimes gives off a very small *Artery*, which pierces the internal *Apophysis* of the *Os Malæ*, all the way to the Orbit. The middle Branch goes partly to the *Musculus Frontalis*, partly to the *Occipitalis*; the posterior Branch goes to the *Occiput*, and communicates with the *Arteria Occipitalis*. All these Branches likewise furnish the *Integuments*. These Branches of the external *Carotids* are, in some measure, express'd *Tab. 5. Fig. 8, 9, 10, 11, 12.*

#### The internal CAROTID ARTERY.

The internal *Carotid Artery*, leaving the general Trunk, is at first a little incurvated, appearing as if either it were the only Branch of that Trunk, or a Branch of the Trunk of the external *Carotid*. Sometimes the Curvature is turn'd a little outward, and then more or less inward, passing behind the neighbouring external *Carotid*, *Tab. 5. 13. 13.*

It is situated a little more backward than the *Carotis externa*, and generally runs up, without any Ramification, as high as the lower Orifice of the great Canal of the *Apophysis Petrosa* of the *Os Temporis*. It enters this Orifice, directly from below, upward, and afterward makes an Angle according to the Direction of the Canal, the rest of which it passes horizontally, being cover'd by a Production of the *Dura Mater*.

At the End of this Canal it is again incurvated from below upward, and enters the Cranium through a Notch of the *Sphenoidal Bone*. Then it bends, from behind, forwards, and makes a third Angle on the Side of the *Sella Sphenoidalis*, or *Turica*; and again, a fourth under the *Clinoid Apophysis* of that *Sella*. See *Tab. 5. Fig. 14. 14.*

As it leaves the bony Canal to enter the Cranium, it sends off a Branch thro' the *Sphenoidal Fissure* to the Orbit and Eye; and, soon afterward, another thro' the *Foramen Opticum*, by which it communicates with the external *Carotid*, *Tab. 5. D, D.*

Afterwards the internal *Carotid* runs under the Basis of the Brain to the Side of the *Infundibulum*, where it is at a small Distance from the internal *Carotid* of the other Side; and there it commonly divides into two principal Branches, one anterior, and one posterior.

The anterior Branch runs forward under the Brain, first separating from that on the other Side; then coming nearer again, it unites with it by an *Anastomosis*, or Communication in the Interstice between the *Olfactory Nerves*. Afterwards having sent off some small *Arteries*, which accompany these Nerves, it leaves its Fellow, and divides into two or three Branches.

The first of these Branches goes to the anterior Lobe of the Brain; the second, which is sometimes double, is inverted on the *Corpus Callosum*, to which it gives some Ramifications; as also to the *Falx* of the *Dura Mater*, and middle Lobe of the Brain. The third, which, in some Subjects, is a distinct Branch, in others, only a Division of the second, goes to the posterior Lobe of the Brain. This might be look'd upon as a third principal Branch, lying between the other two.

The posterior Branch communicates, first of all, with the *Vertebral Artery* of the same Side; and then divides into several Branches, which run between the superficial Circumvolutions of the Brain, and are ramified in many different Directions, on and between these Circumvolutions, all the way to the Bottom of the *Sulci*.

All these Ramifications are cover'd by the *Pia Mater*, in the

Duplicature of which they are distributed, and form capillary reticular Textures in great Numbers; and afterwards they are lost in the inner Substance of the Brain. The anterior and middle Branches produce the same kind of Ramifications; and the anterior, in particular, sends a Twig to the *Corpus Callosum*. The Ramifications of the internal *Carotids* are express'd betwixt the two Figures 18. 18. *Tab. 5.*

#### The SUBCLAVIAN ARTERY.

The *Subclavian Arteries* (*Tab. 5. 4. 4.*) are named from their Situation near the *Claviculæ*, in the transverse Direction of which they run. They are two in Number, one Right, the other Left; and they arise from the Arch of the *Aorta*, on each Side of the Left *Carotid*, which commonly lies in the Middle between them; but when both *Carotids* go out separately, they both lie between the *Subclaviæ*. These *Arteries* terminate, or rather change their Name, above the Middle of the two first Ribs, between the anterior Insertions of the *Musculi Scleni*.

The Right *Subclavian* is larger at the Beginning than the Left, when it produces the Right *Carotid*: Its Origin is likewise more anterior and higher, because of the Obliquity of the Arch of the *Aorta*; for which Reason also the Left is shorter than the Right, and runs more obliquely. Both of them are distributed much in the same manner; and therefore the Description of one may likewise be applied to the other.

The Right *Subclavian*, the longest of the two, gives off, first of all, small *Arteries* to the *Mediastinum*, *Thymus*, *Pericardium*, *Aspera Arteria*, &c. which are named *Mediastinæ*, *Thymicæ*, *Pericardiæ*, and *Tracheales*. These small *Arteries* sometimes go out from the *Subclavian* itself, either separately, or by small common Trunks: Sometimes they are Branches of the *Mammaria interna*, especially the *Mediastina*.

Afterward this Right *Subclavian*, at about a Finger's Breadth from its Origin, often produces the common *Carotid* of the same Side; and, at a small Finger's Breadth from the *Carotid*, it gives off commonly three considerable Branches, viz. the *Mammaria interna*, *Cervicalis*, and *Vertebralis*; and sometimes an *Intercostal Artery*, which goes to the first Ribs, and is call'd *Intercostalis superior*.

#### The ARTERY of the THYMUS.

The *Arteria Thymica* communicates with the *Mammaria interna*, and sometimes arises from the anterior middle Part of the common Trunk of the *Subclavian* and *Carotid*. The *Thymus* receives likewise some Branches from the *Mammaria interna*, and *Intercostalis superior*. The same Observation may be applied to the *Mediastina* and *Pericardia*.

#### The ARTERIES of the PERICARDIUM.

The *Pericardia* arises much in the same manner with the *Thymica*; and runs down upon the *Pericardium* all the way to the *Diaphragm*, to which it sends some small Ramifications.

#### The ARTERIES of the MEDIASTINUM.

The *Mediastina* arises sometimes immediately after the *Thymica*, and is distributed principally to the *Mediastinum*.

#### The TRACHEAL ARTERY.

The *Trachealis*, which may likewise be named *Gutturalis inferior*, runs up from the *Subclavia*, in a winding Course, along the *Aspera Arteria*, to the *Glandulæ Thyroidæ*, and *Larynx*, detaching small *Arteries* to both Sides, one of which runs to the upper Part of the *Scapula*.

#### The internal MAMMARY ARTERY.

The internal *Mammary Artery* comes from the anterior and lower Side of the *Subclavia*, near the Middle of the *Clavicula*; and runs down, for about one Finger's Breadth, behind the *Cartilages* of the true Ribs, an Inch distant from the *Sternum*.

In its Passage it sends Branches to the *Thymus*, *Mediastinum*, *Pericardium*, *Pleura*, and *Intercostal Muscles*. It likewise detaches other Branches thro' these *Muscles*, and between the *Cartilages* of the Ribs, to the *Pectoralis Major*, and other neighbouring muscular Portions, to the *Mammæ*, *Membrana Adiposa*, and *Skin*.

Several of these Branches communicate by *Anastomoses* with the *Mammaria externa*, and other *Arteries* of the Thorax, especially in the Substance of the *Pectoralis Major*, and likewise with the *Intercostals*. Afterwards it goes out of the Thorax on one Side of the *Appendix Eniformis*, and is lost in the *Musculus Abdominis Rectus*, a little below its upper Part; communicating at this Place, by several small Ramifications, with the *Arteria Epigastrica*; and, in its Course, it gives Branches to the *Peritonæum*, and to the anterior Parts of the oblique and transverse *Muscles* of the Abdomen.

#### The CERVICAL ARTERY.

The *Cervical Artery* arises from the upper Side of the *Subclavian*, and is presently afterwards divided into two, which come out



out sometimes separately, sometimes by a small common Trunk. The largest of these two *Arteries* is *anterior*, the other *posterior*. See *Tab. 5. Fig. 19.*

The *anterior Cervicalis*, running behind the *Carotid* of the same Side, is distributed to the *Musculus Coraco-hyoidæus*, *Mastoidæus*, *Cutaneus*, *Sterno-hyoidæus*, and *Sterno-thyroidæus*, to the *Jugular Glands*, the *Aspera Arteria*, the *Muscles* of the *Pharynx*, *Bronchia*, *Œsophagus*, and to the *anterior Muscles* which move the Neck and Head. This *Artery* has been observed to send out the *Intercostalis superior*.

The *posterior Cervicalis* arises sometimes a little after the *Vertebral*, and sometimes from that *Artery*. It passes under the transverse Apophysis of the last Vertebra of the Neck; and sometimes thro' a particular Hole in that Apophysis; and from thence runs up backward, in a winding Course, on the *Vertebral Muscles* of the Neck; and then returns in the same manner.

It communicates with a descending Branch of the *Occipital Artery*, and with another of the *Vertebral Artery*, above the second Vertebra. It is distributed to the *Musculi Scaleri*, *Angularis Scapulæ*, and *Trapezius*, and to the *Jugular Glands* and *Integuments*.

#### The VERTEBRAL ARTERY.

The *Vertebral Artery* goes out from the posterior and upper Side of the *Subclavian*, almost opposite to the *Mammaria interna* and *Cervicalis*. It runs up thro' all the Holes in the transverse Apophyses of the Vertebrae of the Neck; and in its Passage sends off little Twigs thro' the lateral Notches of these Vertebrae, to the *Medulla Spinalis*, and its Coverings. It also gives *Arteries* to the *Vertebral Muscles*, and to other *Muscles* near them. See *Tab. 5. Fig. 6. 6.*

As it passes thro' the transverse Hole of the second Vertebra, it is generally incurvated, to accommodate itself to the particular Obliquity of this Foramen. And between this Hole and that in the first Vertebra, it takes another larger Turn in a contrary Direction to the former: Having pass'd the transverse Hole of the first Vertebra, it is considerably incurvated a third time, from before, backwards, as it goes thro' the superior and posterior Notch in this Vertebra. See *Tab. 5. Fig. 15.*

At this third Curvature it sends off a small Branch, which is ramified on the outer and posterior Parts of the Occiput, and communicates with the *Cervical* and *Occipital Arteries*. Having afterwards reach'd the great Foramen of the Os Occipitis, it enters the Cranium, and pierces the *Dura Mater*; and on these Accounts it may be named *Arteria Occipitalis posterior*, to distinguish it from the other, which is lateral.

As soon as it enters the Cranium, it sends several small Ramifications to the back Part of the *Medulla Oblongata*, and to the *Corpora Olivaria*, and *Pyramidalia*; which are likewise spread on the back Sides of the fourth Ventricle of the Brain, and form the *Plexus Choroides* of the *Cerebellum*.

Afterwards it advances on the Apophysis Basilaris of the Os Occipitis, inclining by small Degrees toward the *Vertebral Artery* of the other Side, all the Way to the Extremity of that Apophysis where they both join in one common Trunk, which may be named *Arteria Basilaris*.

#### The ARTERIA BASILARIS.

The *Arteria Basilaris* runs forward under the great transverse Protuberance of the *Medulla Oblongata*, to which it gives Ramifications, as well as to the neighbouring Parts of the *Medulla*. Sometimes this *Artery* divides again, near the Extremity of the Apophysis Basilaris, into two lateral Branches, which communicate with the posterior Branches of the two *internal Carotides*, and are lost in the posterior Lobe of the Brain.

#### The SPINAL ARTERIES.

The *Spinal Arteries* are two in Number, one *anterior*, and one *posterior*, both produced by both the *Vertebrales*; each of which, as soon as it enters the Cranium, sends out a small Branch, by the Union of which the *posterior Spinalis* is form'd. Afterwards the *Vertebrales* advancing on the Apophysis Basilaris, or Production of the Occipital Bone, detach backward two other small Branches, which likewise meet, and by their Union form the *Spinalis Anterior*. These *Spinal Arteries* run down on the fore and back Sides of the *Medulla Spinalis*, and, by small transverse Ramifications, communicate with those which the *Intercostal* and *Lumbar Arteries* send to the same Part.

#### The internal AUDITORY ARTERY.

The *internal Auditory Artery* goes off from each Side of the *Arteria Basilaris* to the Organ of Hearing, accompanying the *Auditory Nerve*; having first furnish'd several small Twigs to the *Membrana Arachnoidea*.

#### The posterior ARTERY of the MENINX, or DURA MATER.

The *posterior Meningea* arises from the same Trunk with the *Auditoria Interna*, and goes to the back Part of the *Dura*

*Mater*, on the Occipital and Temporal Bones; and likewise supplies the neighbouring Lobes of the Brain.

#### The superior INTERCOSTAL ARTERY.

When the *superior Intercostal Artery* does not go out from the Trunk of the *Aorta Descendens*, it commonly arises from the lower Side of the *Subclavian*, and runs down on the Inside of the two, three, or four uppermost true Ribs, near their Heads; and sends off, under each Rib, a Branch which runs along the lower Edge, and supplies the *Intercostal Muscles*, and neighbouring Parts of the *Pleura*.

These Branches, or particular *Intercostal Arteries*, communicate with each other, at different Distances, by small Branches, which run upward and downward from one to the other, on the *Intercostal Muscles*.

They likewise give Branches to the *Musculi Sterno-hyoidæi*, *Subclavius*, *Vertebrales*, and Bodies of the Vertebrae; and also to the *Pectoralis Major* and *Minor*, piercing the *Intercostal Muscles*; and lastly, they send Branches thro' the Notches of the first four Vertebrae to the *Medulla Spinalis*, and its Coverings.

Sometimes the *superior common Intercostal Artery* comes from the *Cervicalis*, and not immediately from the *Subclavia*. Sometimes it arises from the *Aorta Descendens*, either by small separate *Arteries*, or by a common Trunk, which divides as it runs obliquely up, upon the Ribs. Lastly, it sometimes arises from the nearest *Bronchialis*, or from several *Bronchiales* together.

#### The ARTERIAL DUCT converted into a LIGAMENT.

The *Ductus Arteriosus*, which is found only in the Fœtus, and in very young Children, arises from the *Aorta Descendens*, immediately below the last *Subclavian Artery*. In Adults, this Duct is shrunk up and closed, and appears only like a short Ligament adhering by one End to the *Aorta*, and by the other to the *Pulmonary Artery*; so that, in reality, it deserves no other Name than that of *Ligamentum Arteriosum*. This is refer'd to, but not well express'd, at *Fig. 3. Tab. 5.*

#### The BRONCHIAL ARTERIES.

The *Bronchial Arteries* go sometimes from the fore Side of the *superior descending Aorta*, sometimes from the first *Intercostal*, *Tab. 5. Fig. 29.* and sometimes from the *Arteria Œsophagæa*. Sometimes they arise separately from each Side, to go to each Lobe of the Lungs; and sometimes by a small common Trunk, which afterwards separates towards the Right and Left Hand, at the bifurcation of the *Aspera Arteria*, and accompanies the Ramifications of the *Bronchia*.

The *Bronchial Artery*, on the Left Side, often comes from the *Aorta*, while the other arises from the *superior Intercostal* on the same Side; which Variety is owing to the Situation of the *Aorta*. Sometimes there is another *Bronchial Artery*, which goes out from the *Aorta* posteriorly, near the *superior Intercostal*, above the *Bronchialis anterior*.

In the Year 1719. I observ'd a very plain Communication of the Branches of the Left Pulmonary Vein with the Branches of an *Arteria Œsophagæa*, which came from the first Left *Intercostal*, together with a *Bronchial Artery* of the same Side.

The *Bronchialis* gives a small Branch to the neighbouring Auricle of the Heart, which communicates with the *Arteria Coronaria*.

In the Year 1719. or 1725. I discover'd a Communication between the Left *Bronchial Artery* and the *Vena Azygos*; and in the Month of August, 1721. I saw a Branch of this *Bronchial Artery* join'd by an Anastomosis to the Body of the *Azygos*.

#### The ARTERIES of the ŒSOPHAGUS.

The *Œsophagææ* are generally two or three in Number, sometimes but one. They arise anteriorly from the *Aorta Descendens*, and are distributed to the *Œsophagus*. Sometimes the uppermost *Œsophagæa* produces a *Bronchial Artery*.

#### The inferior INTERCOSTAL ARTERIES.

The *inferior Intercostals*, *Tab. 5. Fig. 31. 31.* are commonly seven or eight on each Side, and sometimes ten, when the *superior Intercostals* arise likewise from the *Aorta Descendens*; in which Case these run obliquely upward, as has been already said.

They arise along the back Side of the descending *Aorta*, in Pairs, all the Way to the Diaphragm, and run transversely toward each Side, on the Bodies of the Vertebrae. Those on the Right Side pass behind the *Vena Azygos*; and afterwards they all run to the *Intercostal Muscles*, along the lower Edge of the Rib, all the Way to the Sternum, or near it.

They send Branches to the *Pleura*, to the *Vertebral Muscles*, to those *Muscles* which lie on the Outfides of the Ribs, and to the upper Portions of the *Muscles* of the Abdomen; and they communicate with the *Arteria Epigastricæ* and *Lumbææ*.



# A R T

Sometimes instead of going out from the *Aorta* in Pairs, they arise by small common Trunks, which afterwards divide, and send an *Artery* to each neighbouring Rib.

Before they take their Course along the Ribs, each of them detaches one Branch between the transverse Apophyses on both Sides, to the Vertebral Muscles, and another which enters the great Canal of the Spina Dorsi. Each of these latter Branches divides at least into two small *Arteries*, one of which runs transversely on the anterior Side of the Canal, the other on the posterior Side: Both of them communicate with the like *Arteries* from the other Side of the Spine, in such a manner, as to form a kind of *arterial* Rings; which likewise communicate with each other by other small Ramifications. The same is to be observed in the *Arteriæ Lumbares*.

Afterward each *Intercostal Artery*, having reach'd the Middle of the Rib, or a little more, divides into two principal Branches, one internal, the other external. Soon after this Division, the *Arteries* that run upon the false Ribs, separate a little from them, being gradually bent downward one after another, and are spread upon the abdominal Muscles. They are likewise distributed to other neighbouring Muscles, and particularly to those of the Diaphragm, almost in the same manner with the *Arteriæ Phœnicæ*. They also communicate with the *Lumbares*, and sometimes with Branches of the *Hypogastricæ*.

## The AXILLARY ARTERIES.

The *Subclavian Artery*, having left the Thorax immediately above the first Rib, in the Interstice left between the Portions of the Scalene, there receives the Name of *Axillaris*, because it passes under the *Axilla*.

In this Course it gives off, from its Inside, a small Branch to the Inside of the first Rib, and afterwards four or five principal Branches; the *Thoracica Superior*, or *Mammaria Externa*, *Tab. 5. Fig. 21. 21. Thoracica Inferior*, *Muscularis*, or *Scapularis Externa*, *Scapularis Interna*, and *Humeralis*.

## The SUPERIOR THORACIC ARTERY.

The *Superior Thoracica*, or *External Mammary Artery*, *Tab. 5. Fig. 21. 21.* runs down in a winding Course on the lateral Parts of the Thorax, and crosses the Ribs. It gives Branches to the two Pectoral Muscles, to the Mamma, Musculus Subclavius, Serratus Major, Latissimus Dorsi, and to the upper Portions of the Coraco-Brachialis, and Biceps.

These Branches are sometimes separate for some Space; and one of them particularly runs down between the Deltoides and Pectoralis Major, together with the Vena Cephalica, to which it adheres very closely, the Extremity of it piercing the Coat of that Vein, as if there were an Anastomosis between them. Another sometimes runs between the Musculus Brachiius, and Anconæus Internus, which communicates with a Branch of the *Radial Artery*.

## The INFERIOR THORACIC ARTERY.

The *Inferior Thoracic Artery* runs along the Inferior Costa of the Scapula, to the Musculus Subscapularis, Teres Major and Minor, Infra Spinatus, Latissimus Dorsi, Serratus Major, and the neighbouring Intercostal Muscles, communicating with the *Arteriæ Scapulares*.

## The SCAPULARY ARTERIES.

The *External Scapular Artery* passes through the Notch in the Superior Costa of the Scapula, to the Musculus Supra spinatus, and Infra Spinatus, Teres Major and Minor, and to the Articulation of the Scapula with the Os Humeri.

The *Internal Scapularis* arises from the *Axillary Artery* near the *Axilla*, and runs backward, to be distributed to the *Subscapularis*, giving Branches to the Serratus Major, to the Axillary Glands, and to the Teres Major, upon which it is ramified in different manners. It likewise sends Branches to the Infra Spinatus, and upper Portion of the Anconæi.

## The HUMERAL ARTERY.

The *Humeral Artery* arises from the Lower and Foreside of the *Axillaris*, and runs backward between the Head of the Os Humeri and Teres Major, surrounding the Articulation, till it reaches the posterior Part of the Deltoides, to which it is distributed.

During this Course, it gives several Branches to the superior Portions of the Anconæi, to the Capsular Ligament of the Joint of the Shoulder, and to the Os Humeri itself, through several Holes immediately below the great Tuberosity of the Head of that Bone. It likewise communicates with the *Scapular Artery*.

Opposite to the Origin of this *Humeral Artery*, the *Axillaris* sends off another small Branch, which runs in a contrary Direction between the Head of the Os Humeri, and the common Upper-part of the Biceps and Coraco-Brachialis; and having given Branches to the Vagina and Channel of the Biceps, and to the Periosteum, afterwards joins the principal *Humeralis*.

# A R T

The BRACHIAL ARTERY. See *Tab. 5. Fig. 23, 24, 25, 26, 27.*

The *Axillary Artery*, having given off these Branches, passes immediately behind the Tendon of the Pectoralis Major, where it changes its former Name for that of *Arteria Brachialis*. It runs down on the Inside of the Arm over the Musculus Coraco-Brachialis, and Anconæus Internus, and along the inner Edge of the Biceps, behind the *Vena Basilica*, giving small Branches on both Sides to the neighbouring Muscles, to the Periosteum, and to the Bone.

Between the *Axilla* and Middle of the Arm, it is covered only by the Skin and Fat; but afterwards it is hid under the Biceps, and runs obliquely forward as it descends, being at some Distance from the internal Condyle; but it does not reach the Middle of the Fold of the Arm.

Between the *Axilla* and this Place, it sends off many Branches to the Infra Spinatus, Teres Major and Minor, Subscapularis, Latissimus Dorsi, Serratus Major, and other neighbouring Muscles, to the common Integuments, and even to the Nerves. Below the Fold of the Arm, it divides into two principal Branches, one called *Arteria Cubitalis*, the other *Radialis*.

From its upper and inner Part, it sends off a particular Branch, which runs obliquely downward and backward over the Anconæi, and then turns forward again near the external Condyle, where it communicates with a Branch of the *Arteria Radialis*.

Immediately below the Insertion of the Teres Major, it gives off another Branch, which runs from within outwards, and from behind forward, round the Os Humeri, and descends obliquely forward between the Musculus Brachiius, and Anconæus Internus, to both which it is distributed in its Passage. Having afterwards reached the external Condyle, it unites with the Branch last-mentioned, and likewise communicates with a Branch of the *Arteries* of the Fore-arm, so that there is here a triple Anastomosis.

About the Breadth of a Finger below this second Branch, the *Brachial Artery* sends off a third, which runs down toward the internal Condyle, and communicates with other Branches of the *Arteries* of the Fore-arm, as we shall see hereafter.

About the Middle of the Arm, or a little lower, much about the Place where the *Brachial Artery* begins to be covered by the Biceps, it sends off a Branch, which is distributed to the Periosteum, and penetrates the Bone, between the Musculus Brachiius and Anconæus Internus.

About an Inch lower, it gives off another Branch, which, having furnished Ramifications to the Anconæus Internus, runs over the inner Condyle, and likewise communicates with Branches of the *Arteries* of the Fore-arm.

Having got below the Middle of the Arm, the *Brachial Artery* detaches another Branch, which runs behind the inner Condyle in Company with a considerable Nerve; and, having passed over the Muscles inserted in this Condyle, it communicates with that Branch of the *Cubital Artery*, which encompasses the Fold of the Arm.

A little lower, it sometimes sends out another Branch, which passes on the Foreside of the inner Condyle, and then communicates with a Branch which runs up from the *Cubital Artery*. These three communicating Branches are termed *Collateral Arteries*.

The common Trunk of the *Brachial Artery*, having reached the Fold of the Arm, runs together with a Vein and a Nerve immediately under the Aponeurosis of the Biceps, and passes under the *Vena Mediana*, detaching Branches on each Side to the neighbouring Muscles.

About a large Finger's Breadth beyond the Fold of the Arm, this *Artery* divides into two principal Branches, one inner or posterior, named *Cubitalis*; the other outer or anterior, named *Radialis*, as has been already said.

From this Bifurcation the *Brachial Artery* sends Branches on each Side, to the Supinator Longus, Pronator Teres, Fat and Skin. It sometimes, though very rarely, happens, that this *Artery* is divided from its Origin into two large Branches, which run down on the Arm, and afterwards on the Fore-arm, where they have the Names of *Cubitalis* and *Radialis*.

## The CUBITAL ARTERY.

The *Cubital Artery* sinks in between the Ulna, and the upper Parts of the Pronator Teres, Perforatus, Ulnaris Gracilis, and Radialis Internus; then leaving the Bone, it runs down between the Perforatus and Ulnaris Internus all the way to the Carpus, and great transverse Ligaments. In this Course it winds and turns several Ways, and sends out several Branches.

The first is a small *Artery* which runs inward to the inner Condyle, and then turns upward like a kind of Recurrent, to communicate by several Branches with the *Collateral Arteries* of the Arm already mentioned, and particularly with the third. A little lower down, another small Branch goes off, which, having run upward a little way, and almost surrounded the Articulation, communicates with the second *Collateral Artery* of the Arm, between the Olecranon and inner Condyle.

After



Afterwards the *Cubital Artery*, having, in its Course between the Heads of the Ulna and Radius, reached the Interosseous Ligament, sends off two principal Branches, one internal, the other external, which I call the *Interosseous Arteries* of the Fore-arm.

The *External Artery* pierces the Ligament about three Fingers Breadth below the Articulation; and presently afterward gives off a Branch, which runs up, like a Recurrent, toward the external Condyle of the Os Humeri, under the Ulnaris Externus, and Anconaeus Minimus, to which it is distributed, as also to the Supinator Brevis; and it communicates with the *Collateral Arteries* of the Arm on the same Side.

Afterward this *External Interosseous Artery* runs down on the Outside of the Ligament, and is distributed to the Ulnaris Externus, Extensor Digitorum Communis, and to the Extensores Pollicis, Indicis, and Minimi Digiti, communicating with some Branches of the *Internal Interosseous Artery*.

Having reached the lower Extremity of the Ulna, it unites with a Branch of the *Internal Interosseous Artery*, which at this Place runs from within outward; and is distributed together with it on the convex Side of the Carpus, and Back of the Hand, communicating with the *Arteria Radialis*, and with a Branch of the *Cubitalis*, which will be mentioned hereafter.

By these Communications, this *Artery* forms a sort of irregular Arch, from whence Branches are detached to the external interosseous Muscles, and to the external lateral Parts of the Fingers.

The *Internal Interosseous Artery* runs down very close to the Ligament, till it reaches below the Pronator Teres, between which and the Pronator Quadratus it perforates the Ligament, and goes to the convex Side of the Carpus, and Back of the Hand, where it communicates with the *External Interosseous Artery*, with the *Radialis*, and internal Branches of the *Cubitalis*.

From the Origin of the two *Interosae*, the *Cubital Artery* runs down between the Perforatus, Perforans, and Ulnaris Internus, along the Ulna, sending Branches to the neighbouring Parts. Below the *Internal Interosae*, it sometimes sends off a Branch, which runs down between the Flexor Pollicis, Radialis Internus, and Perforatus, to which it is distributed all the way to the Carpus, where it runs under the internal annular Ligament, and communicates on the Hand with Branches of the *Arteria Radialis*.

Afterward the *Cubital Artery* passes over the internal transverse Ligament of the Carpus, by the Side of the Os Pisiforme, and having furnished the Skin, Palmaris Brevis, and Metacarpus, it slips under the Aponévroses Palmaris, giving off one Branch to the Hypothenar Minimi Digiti, and another, which runs toward the Thumb, between the Tendons of the Flexors of the Fingers, and the Basis of the metacarpal Bones.

It likewise sends off a Branch, which, running between the third and fourth Bones of the Metacarpus, reaches to the Back of the Hand, where it communicates with the *External Interosseous Artery*. Afterwards having supplied the interosseous Muscles, it communicates with the *Radialis*; and they both form an *Arterial Arch* in the Hollow of the Hand, in the following manner:

The *Cubitalis*, having got about two Fingers Breadth beyond the internal annular Ligament of the Carpus, forms an Arch, the convex Side of which is turned to the Fingers, and commonly sends off three or four Branches. The first goes to the inner and back Part of the little Finger; and is sometimes a Continuation or Production of that Branch, which goes to the Hypothenar.

The other three Branches run in the Interstices of the Four metacarpal Bones, near the Heads of which, each of them is divided into two Branches, which pass along the two internal lateral Parts of each Finger, from the Fore-side of the little Finger, to the posterior Side of the Index inclusively; and at the Ends of the Fingers these *Digital Arteries* communicate and unite with each other.

Sometimes the Arch of the *Cubital Artery* terminates by a particular Branch in the Middle Finger, and in that Case it communicates with the *Radial Artery*, which makes up what the other wants.

This Arch sends likewise from its concave Side, toward the second Phalanx of the Thumb, a Branch for the lateral internal Part thereof, and then ends near the Head of the first metacarpal Bone, by a Communication with the *Radialis*, having first given a Branch to the Fore-side of the Index, and another to the Side of the Thumb next the former. These communicate at the Ends of the Fingers with the neighbouring Branches, as in the other Fingers.

This Arch sends likewise small Twigs to the interosseous Muscles, to the Lumbricales, Palmaris, and to other neighbouring Parts; and lastly, to the Integuments.

#### THE RADIAL ARTERY.

The *Radial Artery* begins by detaching a small Branch, which runs upward like a Recurrent, toward the Fold of the Arm,

and turns backward round the external Condyle, communicating with the neighbouring Branches from the Trunk of the *Brachial Artery*, especially with the first collateral Branch on that Side.

It runs down along the Inside of the Radius, between the Supinator Longus, Pronator Teres, and the Integuments, giving Branches to these Muscles, and likewise to the Perforatus, Perforans, and Supinator Brevis. From thence it runs in a winding Course toward the Extremity of the Radius, supplying the Flexors of the Thumb, and Pronator Quadratus.

Having reached the Extremity of the Radius, it runs nearer the Skin, especially toward the anterior Edge of the Bone, being the *Artery* which we there feel when we examine the Pulse.

At the End of the Radius, it gives off a Branch to the Thenar; and, after having communicated with the Arch of the *Cubital Artery* in the Palm of the Hand, and sent off some cutaneous Branches at that Place, it detaches one, along the whole internal lateral Part of the Thumb.

Afterwards it runs between the first Phalanx and Tendons of the Thumb, to the Interstice between the Basis of this first Phalanx, and of the first metacarpal Bone, where it turns toward the Hollow of the Hand.

At this Turning, it sends off a Branch to the external lateral Part of the Thumb, which, having reached the End thereof, communicates by a small Arch with the branch which goes to the internal lateral Part.

It likewise sends Branches outward, which run more or less transversely between the first two Bones of the Metacarpus and the two Tendons of the Radialis Externus; and it communicates with an opposite Branch of the *Cubitalis*, together with which it furnishes the external interosseous Muscles, and Integuments of the Back of the Hand, and convex Side of the Carpus.

Lastly, the *Radial Artery* terminates in its Passage over the semi-interosseous Muscles of the Index, near the Basis of the first metacarpal Bone, and as it runs under the Tendons of the Flexor Muscles of the Fingers, where it is joined to the Arch of the *Cubitalis*.

It sends off another Branch which runs along the Fore-part of the first Bone of the Metacarpus, to the convex Side of the Index, where it is lost in the Integuments.

It gives likewise a Branch, to the internal lateral Part of the Index, which at the End of that Finger joins an opposite Branch, which comes from the Arch of the *Cubitalis*. It also sends off a small Branch cross the internal interosseous Muscles, where it forms a kind of small irregular Arch, which communicates with the great Arch by several small arterial Branches.

When the Arch of the *Cubitalis* ends at the Middle Finger, the *Radialis* runs along the inner or concave Part of the first metacarpal Bone, at the Head of which it terminates by two Branches.

One of these Branches runs along the inner and anterior lateral Part of the Index, the other passes between the Flexor Tendons of this Finger and the metacarpal Bone; and, having communicated with the cubital Branch of the Middle Finger, it advances on the posterior lateral Part of the Index, all the Way to the End of that Finger, where it unites again with the first Branch.

#### THE DIAPHRAGMATIC ARTERY.

The Left *Diaphragmatic Artery* goes out commonly from the *Aorta Descendens*, as it passes between the Crura of the small Muscle of the Diaphragm. The Right *Diaphragmatic* comes sometimes from the nearest *Lumbar Artery*, but most commonly from the *Cœliaca*. Sometimes both these *Arteries* arise by a small common Trunk immediately from the *Aorta*. They likewise have the Name of *Arteriae Phrenicae*.

They appear almost always in several Ramifications on the concave or lower Side of the Diaphragm, and seldom on the upper or convex Side. They give small Branches to the Glandulae Renales, or Capsulae Atrabiliaria, which sometimes communicate with the other *Arteries* that go to the same Part.

They send likewise small Branches to the Fat which lies upon the Kidneys, called the *Membrana Adiposa*, from whence they have the Name of *Arteriae Adiposae*; and they sometimes come immediately from the Trunk of the *Aorta* on one Side of the *Mesenterica Superior*.

Besides these capital *Diaphragmatic Arteries*, there are others of a subordinate Class, which come from the *Intercostales*, *Mammariae Internae*, *Mediastinae*, *Pericardiae*, and *Cœliaca*, as is observed in the Description of these *Arteries*.

#### THE COELIAC ARTERY.

The Ramifications of this *Artery* are not figured in the Table so accurately as they are described by Winslow.

The *Cœliac Artery* arises anteriorly, and a little to the Left Hand, from the *Aorta Descendens*, immediately after its Passage through the small Muscle of the Diaphragm, nearly opposite to the Cartilage between the last Vertebra of the Back, and first



first of the Loins. The Trunk of this *Artery* is very short, and, near its Origin, it sends off from the Right Side two small *Diaphragmaticæ*, though sometimes there is only one, which goes to the Right Hand, and is afterwards distributed both Ways, communicating with the other *Arteries* of the same Name, which come from the *Intercostales* and *Mammariæ*. The Left Branch sends Ramifications to the superior Orifice of the Stomach, and to the Glandula Renalis on the same Side; the Right furnishes the Pylorus, and the Renal Gland on the Right Side.

Immediately after this, the *Cæliaca* gives off a considerable Branch, named *Arteria Ventriculi Coronaria*, and *Gastrica*, or *Gastrica Superior*; and then it presently divides into two large Branches, one toward the Right Hand, named *Arteria Hepatica*; the other to the Left, called *Splenica*, which is larger than the former.

Sometimes this *Artery* is divided into these three Branches at the same Place, very near its Origin; the Trunk going out from the *Aorta* almost in a straight Line, and the Branches from the Trunk almost at Right Angles, like Radii from an Axis, whence this Trunk has been called *Axis Arteriæ Cæliacæ*.

#### The CORONARY ARTERY of the STOMACH.

The *Coronary Artery* of the Stomach goes first to the Left Side of that Organ, a little beyond the superior Orifice, round which Orifice it throws Branches, and also to every Part of the Stomach near it; and these Branches communicate with those which run along the Bottom of the Stomach to the Pylorus.

Afterwards it runs on the Right Side of the superior Orifice, along the small Curvature of the Stomach, almost to the Pylorus, where it communicates with the *Arteria Pylorica*; and, turning towards the small Lobe of the Liver, it gives off some Branches to it.

Then it advances, under the *Ductus Venosus*, to the Left Lobe of the Liver, in which it loses itself near the Beginning of the just mentioned Duct, having first given off some small Branches to the neighbouring Parts of the Diaphragm and Omentum.

#### The HEPATIC ARTERY.

As soon as the *Hepatic Artery* leaves the *Cæliaca*, it runs to the upper and inner Part of the Pylorus, in Company with the *Vena Portæ*, sending off two Branches, a small one called *Arteria Pylorica*, and a large one, named *Gastrica Dextra*, or *Gastrica Major*.

The *Pylorica* is ramified on the Pylorus, from whence it has its Name; and, having distributed Branches to the neighbouring Parts of the Stomach, which communicate with those of the Right *Gastrica*, it terminates on the Pylorus by an Anastomosis with the *Coronary Artery* of the Stomach.

The Right *Gastric Artery*, having passed behind and beyond the Pylorus, sends out a considerable Branch named *Arteria Duodenalis* or *Intestinalis*, which sometimes comes from the Trunk of the *Hepatica*, as we shall see hereafter. Afterwards this *Gastric Artery* runs along the Right Side of the great Curvature of the Stomach, to the neighbouring Parts of which, on both Sides, it distributes Branches.

These Branches communicate with those of the *Arteria Pylorica*, and of the *Coronaria Ventriculi*, and with the Right *Gastro-epiploicæ*, which furnish the nearest Parts of the Omentum, and communicate with the *Mesenterica Superior*. After this the Right *Gastric Artery* ends in the Left, which is a Branch of the *Splenica*.

The *Duodenal* or *Intestinal Artery* runs along the Duodenum on the Side next the Pancreas; to both which it furnishes Branches, and also to the neighbouring Part of the Stomach. Sometimes this *Artery* goes out from the *Mesenterica Superior*, and sometimes it is double.

The *Hepatic Artery*, having sent out the *Pylorica* and Right *Gastrica*, advances behind the *Ductus Hepaticus*, toward the *Vesicula Fellea*, to which it gives two principal Branches called *Arteriæ Cysticæ*; and another named *Bilaria*, which is lost in the great Lobe of the Liver.

Afterwards this *Artery* enters the Fissure of the Liver, and joins the *Vena Portæ*, with which it runs within a membranous Vagina, called *Capsula Glissonii*, and accompanies it thro' the whole Substance of the Liver by numerous Ramifications, which may be termed *Arteriæ Hepaticæ Proprie*.

Before it enters the Liver, it gives small Branches to the external Membrane of this Part, and to the *Capsula Glissonii*. The *Gastric* and proper *Hepatic Arteries* come sometimes from the *Mesenterica Superior*, when the ordinary Ramifications are wanting.

#### The SPLENIC ARTERY.

Immediately after the Origin of the *Splenic Artery* from the *Cæliaca*, it runs toward the Left Hand, under the Stomach and Pancreas, to the Spleen. It adheres closely to the posterior Part of the lower Side of the Pancreas, to which it gives several Branches named *Arteriæ Pancreaticæ*.

Near the Extremity of the Pancreas, under the Left Portion of the Stomach, the *Splenic Artery* gives off a principal Branch call'd *Gastrica Sinistra* or *Minor*, which runs from Left to Right along the Left Portion of the great Curvature of the Stomach, giving Branches to both Sides of this Portion, which communicate with those of the *Coronaria Ventriculi*.

This *Gastric Artery* sends likewise another Branch, at least, to the Extremity of the Pancreas, which communicates with the other *Pancreatic Arteries*. It also supplies the Omentum with Branches, term'd *Gastro-epiploicæ Sinistræ*; and then it communicates with the Right *Gastrica*, and from this Union the *Gastro-epiploicæ Mediæ* are produced.

From this Detail we learn, that the *Arteria Coronaria Ventriculi*, *Pylorica*, *Intestinalis*, both *Gastricæ*, *Gastro-epiploicæ*, and consequently the *Hepatica*, *Splenica*, and *Mesenterica*, communicate all together.

Afterwards the *Splenic Artery* advances towards the Spleen, in a Course more or less contorted; but before it arrives at that Part, it gives two or three Branches to the large Extremity of the Stomach, which are commonly call'd *Vasa Brevia*, and one to the Omentum, named *Epiploica*.

At the Spleen this *Artery* divides into four or five Branches, which enter that Organ, after having given some small Twigs to the neighbouring Parts of the Stomach and Omentum.

#### The superior MESENTERIC ARTERY.

The *superior Mesenteric Artery*, Tab. 5. Fig. 43. arises anteriorly from the lower Portion of the *descending Aorta*, a very little Way below the *Cæliaca*, going out a little towards the Right Hand, but bending immediately afterwards to the Left.

Near its Origin it gives off a small Branch, which, dividing into two, goes to the lower Side of the Head of the Pancreas, and neighbouring Part of the Duodenum, communicating with the *Intestinalis* by small Arches, and Arcolæ or Mashies.

Afterwards it passes over the Duodenum, between this Intestine and the Meseraic Vein, between the two Laminæ of the Mesentery; and then bending, in an oblique Direction, from Left to Right, and from above downward, by very small Degrees, it advances toward the Extremity of the Ileum. By this Incurvation it forms a kind of long Arch, from the convex Side of which a great many Branches go out.

These Branches are sixteen or eighteen in Number, or thereabouts, and almost all of them are bestow'd on the small Intestines, from the lower third Part of the Duodenum to the Cæcum and Colon. The first Branches are very short, and from thence they increase gradually in Length all the Way to the Middle of the Arch; the rest diminishing again by small Degrees.

As they approach the Intestines, all these Branches communicate first by reciprocal Arches, then by Arcolæ and Mashies of all kinds of Figures, from which is detach'd an infinite Number of small Ramifications, which surround the Intestinal Canal like an annular Piece of Net-work.

These Arches and Mashies increase in Number proportionably to the Length of the Branches, and their Size diminishes gradually as they approach the Intestines.

The first Branches from the convex Side of the Mesenteric Arch, which are very short, supply the Pancreas and Mesocolon, and communicate with the *Duodenal Artery*. The last Branches go to the Appendicula Vermiformis, and send a Portion of an Arch to the Beginning of the Colon.

The considerable Branches from the concave Side of the Mesenteric Arch are seldom above two or three in Number; but before they arise a small Branch goes out to the Duodenum, and gives some very small *Arteries* to the Pancreas.

The first considerable Branch from the concave Side of the Arch goes into the Mesocolon, towards the Right Portion of the Colon, being first divided into two Branches; the first of which runs along the whole superior Part of the Colon, where it forms the famous Communication with the *Mesenterica Inferior*; and might be named *Arteria Colica superior*. The other Division of this Branch runs down on the Right Portion of the Colon.

The second principal Branch, having run for some Space thro' the Mesentery, divides into three Branches; the first of which goes to the lower Part of the Right Portion of the Colon, where it communicates with the second Division of the first Branch: The second goes to the Beginning of the Colon, where it communicates with the first, and to the Intestinum Cæcum.

The third Division of this second Branch, having communicated with the second, gives small Twigs to the Cæcum, Appendicula Vermiformis, and Extremity of the Ileum. Afterwards it communicates with the Extremity of the Arch, or curve Trunk of the *superior Mesenteric*.

All these Communications are by Arches and Mashies, as in those Branches that come from the convex Side of the Arch; and it is to be observ'd in general, that all the Branches of the *Mesenterica Superior* are disposed according to the Folds of the Mesentery, and Circumvolutions of the Intestines; giving off Branches,



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Branches, through their whole Course, to the Laminæ of the Mesentery, its Cellular Substance, and to the Mesenteric Glands.

## The inferior MESENTERIC ARTERY.

The lower Mesenteric Artery, Tab. 5. Fig. 45. goes out anteriorly from the Aorta Descendens inferior, about a Finger's Breadth or more above the Bifurcation, and below the Spermatic Arteries; and having run about the Length of an Inch, or something more, it is divided into three or four Branches, which gradually separate from each other.

The first or superior Branch, about an Inch from its Origin, divides into two Branches; the first of which runs along the Left Portion of the Colon, and forms the Communication of the two Mesenteric Arteries already mention'd. It may be named Arteria Colica Sinistra. The second Branch, having communicated with the first, runs down upon the same Portion of the Colon.

The middle Branch, having run the same Length with the first, divides into two Branches; one of which passes upward on the Extremity of the Colon, communicating by Arches with the second Ramification of the superior Branch; the other runs down on the Extremity of the same Intestine.

When there is another middle Branch, it goes to the first Part of the double Curvature of the Colon, by a like Distribution and Communication from above downward.

The lower Branch goes to the second Portion of the Colon, or to both, when the second middle Branch is wanting, and sends up a Branch which communicates with the foregoing.

It sends another considerable Branch downward, call'd Arteria Hæmorrhoidalis Interna, which runs down behind the Intestinum Rectum, to which it is distributed by several Ramifications; and it communicates with the Arteria Hypogastrica.

## The RENAL ARTERIES.

The Renal Arteries, Tab. 5. Fig. 49. 49. call'd commonly Emulgents, are ordinarily two in Number, and go out laterally from the inferior descending Aorta; immediately under the Mesenterica superior, one to the Right Hand, the other to the Left: The Right is situated more backward, and is longer than the Left, because of the Vena Cava, which lies on the Right Side, between the Aorta and the Kidney.

They run commonly without Division, and almost horizontally, to the Kidneys; into the Depressions of which they enter by several Branches; which form Arches in the inner Substance of these Viscera.

From these Arches numerous small Branches go out toward the Circumference, or outer Surface of the Kidneys. Sometimes there is more than one Artery on each Side; sometimes this Augmentation is only on one Side; and these supernumerary Arteries come sometimes immediately from the Aorta, and enter at the upper or lower Part of the Kidneys.

Ordinarily the Right Renal Artery passes behind the Vena Cava and Renal Vein on the other Side, and the Left Artery, first behind and then before the Vein. Sometimes they send Branches to the Glandulæ Renales, Membrana Adiposa of the Kidneys, and even to the Diaphragm.

## The CAPSULAR ARTERIES.

The Arteries of the Renal Glands, which may be term'd Arteriæ Capsulares, arise sometimes from the Aorta, above the Arteria Renalis; and give out the Arteriæ Adiposæ, which go to the Fat of the Kidneys. Sometimes they come from the Trunk of the Cæliaca. The Right Capsular Artery comes most commonly from the Arteria Renalis of the same Side, near its Origin; the Left from the Aorta, above the Renalis.

## The SPERMATIC ARTERIES.

The Spermatic Arteries, Tab. 5. Fig. 51. 51. are commonly two in Number, sometimes more. They are very small, and go out anteriorly from the Aorta Descendens inferior, near each other, about a Finger's Breadth below the Arteriæ Renales, more or less, between the two Mesentericæ, or between the Renales and Mesentericæ Inferiores. Sometimes one is higher, or placed more laterally, than the other.

They send off, to the common Membrane of the Kidneys, small Branches named Arteriæ Adiposæ; and afterwards they run down upon the Psoas Muscles, on the fore Side of the Ureters, between the two Laminæ of the Peritonæum.

They give several considerable Branches to the Peritonæum, chiefly to those Parts of it which are next the Mesentery; and they communicate both with the Mesentericæ and Adiposæ. They likewise send small Arteries to the Ureters.

Afterwards they pass, in Men, thro' the tendinous Openings of the Abdominal Muscles in the Vagina of the Peritonæum, and are distributed to the Testicles and Epididymes, where they communicate with a Branch of the Iliaca externa.

In Women they do not go out of the Abdomen, but are distributed to the Ovaria and Uterus, and communicate with

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Branches of the Hypogastrica, at the jagged Extremities of the Tubæ Fallopiæ.

## The LUMBAR ARTERIES.

The Lumbar Arteries, Tab. 5. Fig. 50. go out posteriorly from the inferior descending Aorta; in five or six Pairs, or more; much in the same manner with the Intercostals.

They may be divided into Superior and Inferior. The Superior send small Branches to the neighbouring Parts of the Diaphragm and Intercostal Muscles, and supply the Place of Semi-intercostal Arteries. Sometimes those Pairs go out by a small common Trunk, and not separately.

They are distributed on each Side to the Psoas Muscles, to the Quadrati Lumborum, and to the oblique and transverse Muscles of the Abdomen; and by perforating the oblique Muscles, they become external Hypogastric Arteries. They go likewise to the Vertebral Muscles, and to the Bodies of the Vertebrae, and enter the Spinal Canal thro' the lateral Notches, to go to the Membranes, &c. forming Rings much in the same manner with the Intercostals; and they likewise give small Twigs to the Nerves.

## The ARTERIÆ SACRÆ.

The Arteriæ Sacræ, Tab. 5. Fig. 52 go out commonly from the back Part of the inferior descending Aorta, at the Bifurcation. Sometimes they arise higher from the Lumbares; and sometimes lower from the Iliacæ. They are two, three, or four in Number; and sometimes but one. They are ramified on the Os Sacrum, and on the neighbouring Parts of the Peritonæum, Intestinum Rectum, Fat, &c. and enter the Canal of the Os Sacrum thro' the anterior Holes, being there distributed toward each Side. They likewise send small Arteries to the large Fasciculi of Nerves, which go out thro' the Holes of the Os Sacrum, and they penetrate the inner Substance of that Bone.

## The ILIAC ARTERIES. Tab. 5. Fig. 53. 53.

The inferior descending Aorta ends at the last Vertebra of the Loins, and sometimes higher, in two large lateral Branches, one on the Right Hand, the other on the Left, call'd Arteriæ Iliacæ; each of which is a common Trunk to two other Arteries of the same Name. This Bifurcation lies on the anterior and Left Side of that of the Vena Cava. See Tab. 4. Fig. 13.

The primitive Iliac Arteries divaricate gradually as they descend, advancing obliquely toward the anterior and lower Part of the Os Ilium, without any considerable Ramifications, for about the Breadth of three Fingers; except a few very small Arteries that go to the Os Sacrum, some of which enter by the upper Holes, and are distributed like the Arteriæ Sacræ; while others emerge again thro' the posterior Holes, and go to the neighbouring Muscles, &c. They likewise give small Arteries to the Peritonæum, to the Coats of the Veins, and to the Fat and Ureters, behind which the Iliac Trunks pass.

The Right Iliac Trunk passes first on the fore Side of the Origin of the Left Iliac Vein, and runs down on the fore Side of the Right Vein, almost to the Place where it goes out of the Abdomen, its Course being there directed more inwardly. The Left Trunk goes down likewise before the Left Vein, but lies a little toward the Inside as it leaves the Abdomen.

About three Fingers Breadth from their Origin each Iliac Trunk is divided into two secondary Arteries, one external, Tab. 5. Fig. 54. 54. the other internal, Tab. 5. Fig. 55. 55. The external Artery has no particular Name; the internal is term'd Hypogastrica, which often appears to be no more than a Branch of the other in Adults; but in young Children, and especially in the Fœtus, the Hypogastric Artery looks like the Trunk, and the other like a Branch.

The external Iliaca, Tab. 5. Fig. 54. 54. on each Side runs down to the Ligamentum Fallopii, under which it goes out of the Abdomen. In this Course it gives off only a few small Arteries to the Peritonæum, and other Parts near it; but as it passes out of the Abdomen under the Ligament, it detaches two considerable Branches, one internal, the other external.

The internal Branch is named Arteria Epigastrica, Tab. 5. Fig. 57. 57. and goes out anteriorly from the external Iliaca. From thence it runs obliquely upward, on the Tendon of the transverse Muscle, toward the posterior Part of the Rectus, which it reaches about two or three Fingers Breadth above the Os Pubis.

Afterwards the Epigastric Artery runs up along the posterior or inner Side of this Muscle, sending Ramifications to the Tendons of the neighbouring Muscles; and then loses itself by a true Anastomosis of several Ramifications with the Mammaria Interna. It likewise communicates with the inferior Intercostals, which are spread on the Abdomen.

It sometimes gives out two particular Branches, one of which, accompany'd by a Nerve, goes thro' the Foramen Ovale of the Pelvis to the Triceps Muscles; the other runs down to the Testicles,